ENVIRONMENTAL PROTECTION
OFFICE OF POLICY, PLANNING AND SCIENCE
COASTAL MANAGEMENT OFFICE
Coastal Permit Program rules
Coastal Zone Management rules
Flood Hazard Area Control Act rules
Wind and solar energy
Proposed New Rules: N.J.A.C. 7:7-7.30 and 7.31
Proposed Amendments: N.J.A.C. 7:7-1.3, 2.1, 2.3, 4.2 and 7.2; N.J.A.C. 7:7E-3.38, 3.49, 3C.2, 7.4, 7.14, and 8.12; and N.J.A.C. 7:13-7.1 and 7.2

Authorized By: Mark Mauriello, Acting Commissioner, Department of Environmental Protection

Authority: N.J.S.A. 12:3-1 et seq.; 12:5-3; 13:1D-1 et seq.; 13:9A-1 et seq., 13:19-1 et seq.; 13:20-1 et seq.; 23:2A-1 et seq.; 58:10A-1 et seq.; 58:11A-1 et seq.; and 58:16A-50 et seq.

Calendar Reference: See Summary below for explanation of exception to calendar requirement.

DEP Docket Number:

Proposal Number:

A public hearing concerning this proposal will be held on Wednesday, October 14, 2009 at 1:00 P.M. at:

New Jersey Department of Environmental Protection
Public Hearing Room
401 East State Street
Trenton, NJ 08060

Submit written comments by November 7, 2009 to:

Gary J. Brower, Esq.
Office of Legal Affairs
Attn: DEP Docket Number 12-09-08/743
NJ Department of Environmental Protection
401 East State Street, Floor 4
P.O. Box 402

Trenton, NJ 08625-0402

The Department of Environmental Protection (Department) requests that commenters submit comments on disk or CD as well as on paper. Submittals on disk or CD must not be access-restricted (locked or read-only) in order to facilitate use by the Department of the electronically submitted comments. Submission of comments on diskette is not a requirement. The Department prefers Microsoft Word 6.0 or above. MacIntosh formats should not be used. Each comment should be identified by the applicable N.J.A.C. citation, with the commenter's name and affiliation following the comment.

The proposal can be viewed or downloaded on the Department's web site at http://www.state.nj.us/dep.

The agency proposal follows:

Summary

As the Department has provided a 60-day comment period on this notice of proposal, this notice is excepted from the rulemaking calendar requirement pursuant to N.J.A.C. 1:30-3.3(a)5.

The Department is proposing amendments to the Coastal Permit Program rules, N.J.A.C. 7:7, which contain the coastal general permits and the permits-by-rule. Under this proposal, the Department is proposing a new permit-by-rule and two new coastal general permits for the construction of wind turbines on land; a new permit-by-rule for the construction of solar panels; and is describing the situations in which construction of a wind turbine or solar panel does not require a coastal permit. The Department is also proposing amendments to the Coastal Zone Management rules, N.J.A.C. 7:7E, to facilitate the construction of wind turbines in the coastal zone in appropriate locations.

In addition, the Department is proposing amendments to the Flood Hazard Area Control Act Rules (Flood Hazard rules), N.J.A.C. 7:13, to add a new permit-by-rule for the construction of wind turbines on land.

The State of New Jersey Global Warming website, http://www.nj.gov/globalwarming/about, describes greenhouse gases, global warming and the potential affects on New Jersey as follows:

> "Earth is warmed by heat-trapping gases, also called greenhouse gases (GHGs), that are present in the atmosphere. Greenhouse gases have kept the temperature of the planet in a range hospitable for life as we know it for a long time. Recently, due to human activity, levels of greenhouse gases, such as carbon dioxide, have been increasing in the atmosphere. This increase threatens to make Earth warmer than it has been for millions of years. As a result of this planetary warming trend, sea level will also rise.
>
> Throughout the world, temperatures are higher on land, in the air, at the sea surface, underground, and under ice. Ice covered areas are receding, and recent data suggests that the polar ice caps may be melting faster than expected. There is also evidence that tropical storms may be growing more intense. In New Jersey, long-term data document a significant increase in average temperature, and a significant rise in sea level that is consistent with observed and predicted global trends.
>
> Rising ambient temperatures are expected to have direct and indirect impacts on human health and the environment in New Jersey. Direct human health impacts are likely to include increased heat stress, especially for vulnerable urban populations, such as the elderly and urban poor. Climate models predict an increase in the number of days per year with temperatures above 90^{o} F in the New York City metro area, with a potentially significant impact on human health due to heat stress.
>
> Natural ecosystems, water supply and agriculture are also likely to be affected by warmer temperatures and associated changes in the water cycle. Climate-related habitat loss could lead to extinction of some threatened species. Warmer temperatures are expected to lead to more intense rain events, since warm air holds more water vapor. However,

warmer temperatures also are likely to lead to greater evaporation and transpiration of moisture, which could cause drier conditions in soils.

Recent modeling work predicts that temperatures in the Northeast U.S. are likely to rise 2.5 to 4 degrees F in the winter and 1 to 3 degrees F in the summer over the next several decades. These changes will result from GHG emissions that have already occurred, because it will take the climate many years to respond to changes in levels of GHGs in the atmosphere that have already been reached. However, over the longer term, further changes to the climate depend strongly on emissions choices made now and through the end of the century.

Without significant long-term reductions in GHG emissions, the model predicts that the Northeast can expect many more extremely hot days and more events of extreme rainfall, especially in winter. Although there is likely to be more precipitation overall, the likelihood of summer droughts will increase, because the higher temperatures will dry soils faster; one- to three-month droughts could happen almost every year by the end of the century.

However, the model predicts that if measures are instituted that allow the world to follow a path of economic growth based on less fossil fuel-intensive industry and more use of renewable energy that would cause GHG emissions to peak around mid-century and then decline, many of the projected changes in the Northeast will be much less severe, e.g. the likelihood of short-term droughts will be only slightly higher than today.

Sea level rise due to climate change is of major concern to New Jersey. New Jersey is especially vulnerable to significant impacts due to geologic subsidence, the topography of its coastline, current coastal erosion, and a high density of coastal development."

The burning of fossil fuels releases GHGs, including carbon dioxide, methane and nitrous oxide, all of which contribute to global warming. New Jersey has undertaken several initiatives to reduce GHG emissions, including the adoption of a new Energy

Master Plan, the Regional Greenhouse Gas Initiative (RGGI), Governor Corzine's Executive Order 54, and the Global Warming Response Act, N.J.S.A. 26:2C-37 et seq. Each of these initiatives calls for a reduction in GHG emissions within the State and greater reliance on renewable sources of energy. The Regional Greenhouse Gas Initiative requires the purchase of emissions credits by electric generation facilities for each ton of carbon dioxide emitted. Executive Order Number 54 calls for the reduction of greenhouse gas emissions to 1990 levels by 2020, and a further reduction to 80 percent below 2006 levels by 2050. The Global Warming Response Act of 2007 codifies these reduction targets into law.

New Jersey adopted a new Energy Master Plan in October 2008 (see http://www.state.gov/emp). The Energy Master Plan includes a number of challenges that the State must address, including New Jersey's increasing contribution to global warming. The Energy Master Plan seeks to address this challenge in a number of ways. One goal of the Energy Master Plan is that the State meets 30 percent of its electricity needs from renewable sources by 2020.

"Renewable energy provides the State with an opportunity to produce electricity that does not contribute to greenhouse gas emissions, and relies on renewable and most of the time free fuel sources such as wind and solar." (New Jersey Energy Master Plan at p. 12) To achieve this goal, the Energy Master Plan calls for at least 3,000 megawatts (MW) of offshore wind capacity, 200 MW of onshore wind capacity, and 2,120 gigawatt hours (approximately 1,800 MW) of solar energy production.

Facilities that produce electric power are defined as development under the Coastal Area Facility Review Act (CAFRA), N.J.S.A. 13:19-1 et seq., and are therefore regulated when proposed in the CAFRA area. In addition, development of such facilities is regulated under the Waterfront Development Law, N.J.S.A. 12:5-3 and the New Jersey Flood Hazard Area Control Act, N.J.S.A. 58:16A-50 et seq., depending on the proposed location. To assist the State in meeting the ambitious renewable energy goals described above, the Department is proposing these amendments, including new coastal general permits and permits-by-rule, to address the regulation and permitting of wind turbines

and solar panels and to facilitate review and construction of these facilities in appropriate locations.

Wind turbines can be constructed on either a horizontal or a vertical axis. They are made up of many components, including blades, nacelle, rotor and tower. The tower supports the other components of the turbine. Towers can vary dramatically in height. They can be tubular steel poles, steel lattice, poles with guy wires and other designs. The nacelle, containing components such as a gear box, brakes and generator, is located on top of the tower. The rotor, also located atop the tower, is comprised of the blades and the hub. As wind blows over the blades, they rotate.

Wind turbines have the potential to impact breeding, wintering and migrating birds and bats, and, when located in tidal waters, marine organisms. Appropriate siting of wind turbines depends upon many factors. Among the factors that determine the potential impact of wind turbines are the height of the turbine, the rotor swept area of the turbine, and the flight behavior of the birds and bats found in the area. The behaviors and flight altitudes of birds and bats are variable. For example, birds in migration tend to fly at higher altitudes than breeding birds that are nesting or foraging within and among suitable habitats. However, the altitude of migratory flight varies depending on weather conditions, visibility, navigation mode (celestial vs. geographic), taxonomic group (diurnal vs. nocturnal migration), age (juvenile vs. adults), and time constraints on migration associated with breeding vs. non-breeding period (frequency and duration of stops to rest and refuel).

Because of the variables involved, the placement of identical turbines in two different locations can lead to dramatically different impacts even though the size of the blades, the height of the structure and all other construction details are the same. In addition, the placement of two different turbines in the identical location can lead to dramatically different impacts depending on the height, rotor swept area, and design. Based on review of the literature, the rule proposal treats wind turbines differently, depending on location, height, rotor swept area, and design and includes requirements for setbacks and monitoring.

Another factor that can influence the potential impacts of wind turbines, where birds and bats are in the altitudinal range of the turbine, is the visibility of the turbine. While wind turbines are colored to maximize visibility for airplanes (white turbine against darker background of the earth, vegetation, water) and to minimize visual impacts to the human view-shed, white turbines are not necessarily highly visible to birds that approach them from a variety of directions (for example, white turbine against bright or hazy sky, or a white clouded sky). Even in good visibility conditions "motion smear" or "motion blur" can cause turbine blades, particularly the fast-moving end of the blade, to become transparent to the bird. Paradoxically, the "invisibility" of blade tips occurs at greater distances from larger, slower-moving turbines and worsens as a bird moves closer to the turbine. Moreover, the slim profile of blades in the lateral plane (looking side-on, parallel to the blade axis) and motion smear, make fast-moving tips of rotor blades invisible to birds approaching from side-on (Hodos, 2003). (Note: complete citations for the references cited are provided below.)

Impacts can additionally vary based upon seasonal considerations. Migrating birds make landfall ("stopovers") daily to rest and refuel. Therefore, when stopping over, landbird and shorebird migrants fly at low altitudes over land and coastal waters to utilize foraging and roosting habitats in a manner similar to breeding birds. The duration of migration flight and stopover vary seasonally and by species. Migration is characterized by a time-stressed spring migration (April through May) where large numbers of birds move en masse to breeding areas and a less time-stressed fall migration (mid-July through November) where smaller flocks of birds move through New Jersey coastal areas over a longer period of time, stopping more frequently and for longer durations. In the spring and fall there is a propensity for some taxonomic groups to concentrate in large numbers because of food resources (e.g., spring migratory shorebirds feeding on horseshoe crab eggs) or at geographic barriers (concentrations of migrant songbirds and raptors along the Atlantic coast and in the Cape May Peninsula) (Niles et al., 2008, McCann et al., 1993). Stopover duration in spring and fall can range from one to several days up to several weeks.

Impacts can also vary between migratory and resident populations, as well as the relationship of the location of the wind turbines to nesting and foraging areas. Siting of wind turbines is a concern for breeding and wintering birds since there is a greater potential for interactions with the turbines over a longer timeframe than with migrating birds. Breeding and wintering species are likely to be more familiar with their home range area, have learned where hazards and obstacles are located, and may be better able to avoid them. However, unintended consequences can arise from poorly sited or managed (from the perspective of wildlife) turbines. For example, in the case of Altamont, California, the wind turbine area became an attractive nuisance for raptors because short-grass management increased the density of mammalian prey, and lattice towers provided hunting perches (Smallwood et al., 2001, Orlof & Flannery, 1992). Accordingly, the number of actual interactions between raptors and the wind turbines proved to be greater than anticipated. Various species of breeding grouse may avoid nesting in areas near structures like turbines, thus eliminating otherwise suitable habitat for these species (Manville, 2004). Multiple species of terns have been shown to be susceptible to collisions with turbines when they are sited between their breeding and foraging areas (Everaert and Stienen, 2007). Analogous instances could occur if turbines are located in areas of high use by a given species (its breeding- or winter range), or if vegetative management (on land) or turbine monopoles (in water) create habitat for their prey base (attractive nuisance). Cumulatively, as the number and size of wind turbines increase along the coast, the greater the potential for habitat loss and habitat avoidance.

A wide range of factors influencing the potential impact of wind turbines has similarly been found to apply to bats. To date, nearly all studies of bat mortality associated with wind energy development have cited a dominance of migratory, foliage- and tree-roosting lasiurine species killed by turbines (Arnett et al. 2007). In addition, it has been reported that the highest bat fatalities at wind energy facilities occur during late summer and early fall (Johnson 2005, Kunz et al. 2007) corresponding to the period of post-breeding southward migration for hoary, silver-haired and eastern red bats (Bogan et al. 1996, Koehler and Barclay 2000). Several studies have reported that bat migratory passage rates are higher during evenings with low wind speed (Arnett 2005, Reynolds

2006). Buchler (1980) reported that juvenile bats have reduced abilities to echolocate and fly and are therefore more susceptible to collisions than adults.

Bats appear to engage in more exploratory behaviors with wind turbines than birds. Horne et al. (2006) conducted a study of the behavioral responses of bats to operating wind turbines in West Virginia and reported that bats actively investigated both moving and stationary turbine blades. They also observed that bats landed upon and investigated turbine blades and monopoles suggesting that they may be attracted to wind turbines themselves possibly because they view these tall structures, standing in open areas, as potential roost trees or habitat where mates can be located (Kunz et al., 2007, Cryan, 2008). In addition to the potential for collisions with turbines, recent research has suggested that bats may also be susceptible to barotrauma, where tissue damage to their air-containing structures leads to death. Barotrauma occurs when the bats enter the air space around the turbine and experience a rapid decrease in air pressure. (Baerwald et al., 2008).

Reported altitudes of migrating bats are within the rotor-swept height of many new generation turbines. Some groups of bats have been reported to migrate at altitudes greatly exceeding 100 meters (Altringham 1996). Allen (1939) reported that bats observed migrating during daylight hours over Washington D.C. flew at heights between 46 and 140 meters (between 151 and 459 feet) above the ground. It has also been reported that many species of bats rely on linear features (rivers and coastlines) in the landscape while migrating (Strelkov 1969, Humphrey and Cope 1976, Timm 1989). This could direct migrating bats over wind energy facilities in the coastal region in higher-than-average numbers.

Although there is not extensive data on migrating bats in the coastal region of New Jersey, several species have been known to roost on buildings and other structures during the fall migration. Specifically, bats have been reported to roost on several casinos and other manmade structures in Atlantic City, New Jersey (Annette Scherer, personal communication, June 22, 2009).

Similarly, birds may be impacted by wind turbines located in tidal waters. The Cape Wind Energy Project Final Environmental Impact Statement, dated January 2009,

prepared by the U.S. Department of the Interior Minerals Management Service (OCS Publication No. 2008-040) identifies potential impacts to include those associated with vessel traffic and oil spills, displacement of birds, as well as the risk of collision with the turbines and the barrier that wind turbines present to traveling birds. The impact would depend in part on the species, its behavior and use of the site, and the location and size of the turbines.

Other marine organisms, including marine mammals and sea turtles, may also be affected by the construction and operation of wind turbines. The impacts in marine waters are not well understood. The Department is conducting a study, discussed later in this summary that will begin to address the distribution and abundance of species offshore and potential ecological impacts of offshore wind turbines. Although the impacts are not well understood, it is known that marine mammals are sensitive to noise and vibrations (Cape Wind EIS). Marine mammals, particularly whales, and sea turtles are vulnerable to vessel strikes. The potential for such vessel strikes would increase during construction and servicing of offshore wind turbines. A Danish study of two offshore wind farms found that after two years, the abundance of porpoises had not returned to pre-construction densities at one of the two locations (DONG Energy et al. 2006). There are no existing offshore wind farms in the United States. As discussed later in this summary, the Department is proposing rule amendments to allow the construction of an offshore demonstration wind energy facility to assist in assessing the impacts of an offshore wind farm.

With respect to wind turbines on land, this proposal takes the above factors into account in determining where and under what conditions wind turbines may be appropriately approved pursuant to a permit-by-rule, general permit or individual permit, as well as where construction of certain larger scale wind turbines is not appropriate. The proposal utilizes a tiered approach, with wind turbine development having the lowest potential impacts qualifying for authorization under a permit-by-rule and the level of Department review increasing as the potential impacts caused by the location, height or construction method of the wind turbine increases. The standards for each type of permit are described in detail below.

A list of literature cited above that assisted in the development of the rule is provided below.

Allen, G. M. 1939. Bats. Dover Publications, New York, New York, USA.

Altringham, J. D. 1996. Bats: biology and behaviour. Oxford University Press, New York, New York, USA.

Arnett, E. B., technical editor. 2005. Relationships between bats and wind turbines in Pennsylvania and West Virginia: an assessment of bat fatality search protocols, patterns of fatality, and behavioral interactions with wind turbines. A final report submitted to the Bats and Wind Energy Cooperative. Bat Conservation International. Austin, Texas, USA.

Arnett, E. B., W. K. Brown, W. P. Erickson, J. K. Fielder, B. L. Hamilton, T. H. Henry, A. Jain, G. D. Johnson, J. Kerns, R. R. Koford, C. P. Nicholson, T. J. O'Connell, M. D. Piorkowski and R. D. Tankersley, JR. 2008. Patterns of bat fatalities at wind energy facilities in North America. Journal of Wildlife Management 72(1):61-78.

Baerwald, E.F., G.H. D'Amours, B.J. Klug, R.M.R. Barclay. 2008. Barotrauma is a significant cause of bat fatalities at wind turbines. Current biology 18(16):695-696.

Bogan, M. A., J. G. Osborne, and J. A. Clarke. 1996. Observations on bats at Badlands National Park, South Dakota. Prairie Naturalist 28:115–123.

Buchler, E. R. 1980. The development of flight, foraging, and echolocation in the little brown bat (*Myotis lucifugus*). Behavioral Ecology and Sociobiology 6:211–218.

Cryan, P.M. 2008. Mating Behavior as a Possible Cause of Bat Fatalities at Wind Turbines. Journal of Wildlife Management 72(3)845-849.

DONG Energy, Vattenfall, The Danish Energy Authority, and The Danish Forest and Nature Agency. 2006. Danish Offshore Wind - Key Environmental Issues.

Everaert, J. and E.W.M. Stienen. 2007. Impact of wind turbines on birds in Zeebrugge (Belgium) Significant impact on breeding tern colony due to collision. Biodiversity Conservation 16:3345-3359.

Hodos, W. 2003. Minimization of motion smear: reducing avian collisions with wind turbines. Period of performance: 12 July 1999 to 30 August 2002. US Department of Energy, National Renewable Energy Laboatory Technical Report NREL/SR-500-33249, Golden, CO, USA. Retrieved 22 June 2009 from http://www.nrel.gov/wind/pdfs/33249.pdf.

Horne, J. W., E. B. Arnett and T. H. Kunz. 2008. Behavioral responses of bats to operating wind turbines. Journal of Wildlife Management 72(1):123-132.

Johnson, G. D. 2005. A review of bat mortality at wind-energy developments in the United States. Bat Research News 46:45-49.

Koehler, C. E. and R. M R. Barclay. 2000. Post-natal growth and breeding biology of the hoary bat (*Lasiurus cinereus*). Journal of Mammalogy 81:234–244.

Kunz, T. H., E. B. Arnett, W. P. Erickson, A. R. Hoar, G. D. Johnson, R. P. Larkin, M. D. Strickland, R. W. Thresher, and M. D. Tuttle. 2007. Ecological impacts of wind energy development on bats: questions, research needs and hypothesis. Frontiers in Ecology and the Environment 5:315-324.

Manville, A.M., II. 2004. Prairie grouse leks and wind turbines: U.S. Fish and Wildlife Service justification for a 5-mile buffer from leks; additional grassland songbird

recommendations. Division of Migratory Bird Management, USFWS, Arlington, VA, peer-reviewed briefing paper. 17 pp.

McCann, J. M., S. E. Mabey, L. J. Niles, C. Bartlett, P. Kerlinger. 1993. A regional study of coastal migratory stopover habitat for Neotropical migrant songbirds: Land management implications. Trans. 58th N.A. Wildlife and Natural Resources Conference.

Niles L.J., Sitters HP., Dey A.D., Atkinson P.W., Baker A.J, Bennett K.A., Carmona R.C., Clark K.E, Clark N.A., Espoz C., González P.M., Harrington B.A., Hernández D.E., Kalasz K.S., Lathrop R.G., Matus R.N., Minton C.D.T., Morrison R.I.G., Peck M.K., Pitts W., Robinson R.A., & Serrano I.L. 2008. Status Of The Red Knot (*Calidris Canutus Rufa*) In The Western Hemisphere Studies. Studies in Avian Biology 36:1–185.

Orloff, S. & A. Flannery. 1992. Wind turbine effects on avian activity, habitat use, and mortality in Altamont Pass and Solano County WRAs. Prepared by BioSystems Analysis, Inc. (Tiberon, CA) for California Energy Commission.

Reynolds, D. S. 2006. Monitoring the potential impact of a wind development site on bats in the northeast. Journal of Wildlife Management 70:1219–1227.

Schmidt, E., A. J. Piaggio, C. E. Bock, and D. M. Armstrong. 2003. National Wind Technology Center site environmental assessment: bird and bat use and fatalities - final report NREL/SR-500–32981. National Renewable Energy Laboratory, Golden, Colorado, USA.

Smallwood, K.S., L. Rugge, S. Hoover, M.L. Morrison & C. Thelander. 2001. Intra- and inter-turbine string comparison of fatalities to animal burrow densities at Altamont Pass. Pp. 23-37. In S. S. Schwartz, (ed.) Proceedings of the National Avian- Wind Planning Meeting IV. Prepared for the Avian Subcommittee of the National Wind Coordinating Committee by RESOLVE, Inc. Washington, DC.

Strelkov, P. P. 1969 Migratory and stationary bats (Chiroptera) of the European part of the Soviet Union. Acta Zool. Cracov. 14, 393-440.

The Department held a stakeholder meeting on December 11, 2008 to gather information and concerns about natural resource impacts that could result from the development of terrestrial wind turbines in New Jersey's coastal zone and to present an overview of the regulatory approach under consideration at that time, particularly the tiered approach to regulation. Public comments were taken at the meeting and the public was offered the opportunity to submit comments by email until January 15, 2009. The meeting was attended by individuals representing various interests, including wind energy developers and environmental organizations. Commenters generally agreed with the tiered approach to regulating wind turbines and the consideration of both turbine height and rotor swept area. Some commenters suggested different heights for the permit-by-rule and coastal general permits than those that the Department was considering and suggested that wind turbines should not be subject to any different regulation than other tall structures. Concern about mortality to birds and bats was raised and the identification of an acceptable level of mortality for birds and bats was discussed. The different effects on birds and bats of lattice towers as compared to monopole towers and the differences in cost for these two types of construction were also presented. Difficulties in monitoring in wetlands and near the water were raised by commenters. Based on the input received, the Department changed the height of the lowest tier from 150 feet to 200 feet, incorporated standards for use of monopoles, and specified monitoring requirements.

The following is a summary of the proposed amendments.

N.J.A.C. 7:7 Coastal Permit Program Rules

SUBCHAPTER 1. GENERAL PROVISIONS

N.J.A.C. 7:7-1.3 Definitions

A definition of "floodway" is proposed because floodways are one of the areas where construction of a wind turbine tower or site disturbance can not be authorized under the proposed permit-by-rule or general permits. The definition refers to the definition of that term in the Flood Hazard Area Control Act rules, N.J.A.C. 7:13-1.2.

A definition of "impervious cover" is proposed. Impervious cover reduces and/or prevents absorption of stormwater into the land. The proposed definition includes examples of items that are considered impervious cover (such as structures) as well as examples that are not considered impervious cover under the rules (such as lawns). The proposed definition is the same as the definition of "impervious cover" in the Coastal Zone Management rules at N.J.A.C. 7:7E-1.8. As exceptions are made in this proposal for the installation of wind turbines and solar panels on legally existing impervious cover in certain situations (see proposed N.J.A.C. 7:7-2.1(b)13 and proposed N.J.A.C. 7:7-7.2(a)12 and 13), inclusion of this definition is necessary to assure that there is no confusion as to what constitutes impervious cover under this rule.

A definition of "rotor swept area" is also proposed. The size of the rotor swept area is one of the factors that determines whether a permit-by-rule or coastal general permit is applicable to a particular proposed wind turbine project. The impacts of wind turbines on birds and bats vary depending upon a number of factors, including the height of the turbine and the size of the rotor swept area. The greater the rotor swept area, generally the greater the potential for negative impacts to flying organisms and the greater the need for the Department to review and analyze the impact of a particular proposed installation. As indicated above, wind turbines can be constructed on either a horizontal or a vertical axis. The rotor swept area is calculated differently for a horizontal axis turbine than for a vertical axis turbine. The tips of the blades on a horizontal axis turbine form a circle as they rotate. The rotor swept area for this type of turbine is the area of the circle delineated by the tips of the blades. The designs of vertical axis turbines vary greatly in the arrangement of the blades. The rotor swept area for this type of turbine is calculated by multiplying the rotor radius by the rotor height by 3.14.

SUBCHAPTER 2. ACTIVITIES FOR WHICH A PERMIT IS REQUIRED

7:7-2.1 CAFRA

Subchapter 2 describes development activities for which a coastal permit (including CAFRA, coastal wetlands and waterfront development permits) is required. N.J.A.C. 7:7-2.1 specifies the types of development for which a CAFRA permit is required, and, at N.J.A.C. 7:7-2.1(b), provides Department interpretations of the statutory intent as it applies to particular forms of development. As indicated in N.J.A.C. 7:7-2.1(b), the Department interprets the statutory intent to exclude developments with relatively minor impacts and, consistent with that over-arching determination, interprets how the statutory intent applies to particular types of development. The Department has determined that the construction of a wind turbine on or structurally attached to an existing building will have only minor impacts, provided it is less than 200 feet in height, has a cumulative rotor swept area of 2,000 square feet or less, and any portion of the tower of the turbine more than 100 feet above the ground surface is a freestanding monopole. Accordingly, the Department is proposing at N.J.A.C. 7:7-2.1(b)13i to provide that such installation is not regulated under CAFRA.

Similarly, at N.J.A.C. 7:7-2.1(b)13ii, the Department is proposing that the installation of solar panels on or structurally attached to an existing building or on a utility pole in a maintained utility right-of-way does not require a CAFRA permit, nor does the installation of solar panels on legally existing impervious cover outside of a floodway or on a sanitary landfill. The coastal permitting process establishes impervious cover limits and vegetative cover requirements based on a site's location in order to control the amount of development that can occur in an area and protect environmentally sensitive areas, waters, agricultural lands and open space. The Department has determined that solar panels would have only minor impacts when placed on areas that are already impervious, except if they were proposed in a floodway, where they may be damaged and may cause damage to other structures in a flood. Because of these concerns, this exemption applies to existing impervious cover located outside of the floodway.

7:7-2.3 Waterfront development

N.J.A.C. 7:7-2.3, Waterfront development, describes jurisdiction under the

Waterfront Development law. N.J.A.C. 7:7-2.3(d) identifies those development activities that do not require a Waterfront Development permit. For the same reasons the Department is proposing N.J.A.C. 7:7-2.1(b)13 as described above, the Department is proposing similar exemptions from waterfront development permitting requirements at N.J.A.C. 7:7-2.3(d)4 and 5. Specifically, these amendments will provide that the construction of a wind turbine on or structurally attached to a legally existing building does not require a Waterfront Development permit provided it is less than 200 feet in height, has a cumulative rotor swept area of 2,000 square feet or less, and any portion of the tower of the turbine more than 100 feet above the ground surface is a freestanding monopole, and the installation of solar panels does not require a Waterfront Development permit when the solar panels are installed on an existing building or utility pole, when installed on existing legal impervious cover and outside of a floodway, or when installed on a sanitary landfill.

SUBCHAPTER 4. PERMIT REVIEW PROCEDURE

7:7-4.2 Application contents

Subchapter 4 identifies the materials that must be included in an application for an individual waterfront development, wetland or CAFRA permit. Proposed N.J.A.C. 7:7-4.2(g) requires that applications for wind turbines must provide pre and/or post-construction monitoring under the proposed amendments to the Energy facility use rule, N.J.A.C. 7:7E-7.4(r), include the monitoring methodology in their application submission. As discussed below in the summary of proposed changes to the Energy facility use rule, the Department is requiring monitoring for the presence of and impacts to birds and bats and, for wind turbines in tidal waters, marine organisms, to enable the Department to evaluate the impacts of large turbines and determine the extent to which operations are affecting the behavior and distribution of birds and bats and, in tidal waters, marine organisms. The Department is proposing to require that the methods proposed to be utilized in conducting the required monitoring be submitted as part of the application which will allow the Department to ensure that the methods proposed will result in the gathering of information that is useful to assess the impacts of the wind

turbine development. The Department has developed pre- and post- construction monitoring protocols which are described in detail below.

SUBCHAPTER 7. GENERAL PERMITS AND PERMITS-BY-RULE

In accordance with N.J.A.C. 7:7-7.1(c), the Department may issue a coastal general permit or permit-by-rule under the Coastal Permit Program rules only if certain conditions are met. Specifically, the Department must determine that the regulated development will cause only minimal adverse environmental impacts when performed separately, will have only minimal cumulative adverse impacts on the environment, and is in keeping with the legislative intent to protect and preserve the coastal area from inappropriate development. It must also determine that the development will be in conformance with the purposes of applicable statutes. Lastly, the Department must provide public notice and a public hearing on the proposed coastal general permit or permit-by-rule.

As indicated above, the Department is proposing one new permit-by-rule and two coastal general permits for the construction of wind turbines on land, as well as a new permit-by-rule for the construction of solar panels. The proposed coastal general permits and permits-by-rule satisfy the requirements contained in N.J.A.C. 7:7-7.1(c). The proposed coastal general permits and permits-by-rule are limited in a manner that will assure that any development occurring pursuant to one of these permits will not have more than minimal adverse impacts on the environment, either separately or cumulatively (when considered in combination with other projects). As discussed below, the proposed coastal general permits and permits-by-rule can only be authorized if the proposed wind turbine(s) or solar panel(s) are not located in environmentally sensitive special areas and are located so as to minimize adverse impacts to endangered and threatened wildlife or plant species habitats as well as critical wildlife habitats.

Using a coastal general permit or permit-by-rule will not compromise the Department's efforts to protect and preserve the coastal areas from inappropriate development, because the proposed coastal general permits and permits-by-rule will contain specific criteria intended to minimize their environmental impacts. These include

requiring that the development is not located on beaches, dunes, wetlands or coastal bluffs, thus protecting these areas from development, and measures to protect wildlife. Additionally, these coastal permits do not apply in floodways or wild and scenic river corridors, where such development would be inappropriate unless a case-by-case individual review afforded under an individual coastal permit application indicated compliance with standards for these areas.

N.J.A.C. 7:7-7.2 Permits-By-Rule

As discussed above, in order to assist the State in meeting the Energy Master Plan's renewable energy goals by facilitating permitting in appropriate locations, the Department is proposing two new permits-by-rule; one for the construction of one, two or three small wind turbines on land; and one for the installation of solar panels on a maintained lawn or areas of land that have been manipulated through landscaping and are maintained. A permit-by-rule is a permit for activities that the Department has determined have minimal potential for environmental impact, provided the conditions of the permit-by-rule are met. No plans, application forms, or photographs need to be submitted to the Department for an activity or development eligible for a permit-by-rule.

Permit-by-rule for the construction of one, two or three wind turbines on land

The proposed new permit-by-rule at N.J.A.C. 7:7-7.2(a)12 authorizes the construction of one, two or three wind turbines on land provided certain criteria are met. Based on the information currently available, the Department has determined that turbines 200 feet in height or taller must be individually reviewed, either through a general or an individual permit application. Accordingly, to be eligible for this permit-by-rule, the wind turbines must be less than 200 feet in height and must have a cumulative rotor swept area of no greater than 2,000 square feet. The height of the turbine is measured from the ground surface to the tip of the blade at its highest position. The limitation on the rotor swept area under the permit-by-rule will allow the construction of most 50 KW and smaller wind turbines, the power rating typically used at single family dwellings and small businesses, while not posing a risk to birds and bats.

N.J.A.C. 7:7-7.2(a)12i provides that the wind turbine shall not be installed in, on or overhanging dunes, beaches, wetlands, or coastal bluffs because of the environmentally sensitive nature of these areas. N.J.A.C. 7:7-7.2(a)12i also provides that the permit-by-rule does not apply in wild and scenic river corridors. Wild and scenic river corridors have been established under the National Wild and Scenic Rivers Act, with the primary purpose of protecting the free-flowing character and the outstandingly remarkable resource values of designated rivers. The Act recognizes outstandingly remarkable scenic, recreational, fish and wildlife, historic, cultural and similar values of certain rivers of the State, as well as the importance of protecting these water bodies to reduce the risk of loss of life and property resulting from the over-development of floodplains. In New Jersey's coastal zone, portions of the Great Egg Harbor River and the Maurice River have been designated wild and scenic rivers. In order to protect the scenic values of these rivers, review of individual wind turbine projects through an individual permit application submission is necessary.

Proposed N.J.A.C. 7:7-7.2(a)12ii, provides that no wind turbine tower or associated site disturbance be located in a floodway. This is necessary in order to protect the turbine from flood damage, since the depth and velocity of floodwaters present in the floodway portion of the flood hazard area would subject the wind turbine to unsafe conditions that could undermine and compromise the structural integrity of the tower. Furthermore, the placement of fill or structures within floodways obstructs flow and exacerbates nearby flooding conditions.

Proposed N.J.A.C. 7:7-7.2(a)12 iii requires a setback from the water, wetlands, beach and dune so that these areas and the wildlife that use them will be protected from site disturbance associated with the proposed development. The permit-by-rule process does not require any submission to or review by the Department. Coastal waters, wetlands, beaches and dunes are heavily used by wildlife, including avian species. In order to ensure that there are not adverse impacts to these species or habitats, in the absence of a site-specific review, a buffer is proposed. Lagoons are highly disturbed areas and construction adjacent to them does not pose the same risk; therefore, no such buffer is required.

Endangered and threatened species include wildlife that are facing possible extinction in the State in the immediate future due to loss of suitable habitat, and past overexploitation through human activities or natural causes. The Department has developed maps of endangered and threatened wildlife species habitat, entitled "Landscape Maps of Habitat for Endangered, Threatened and Other Priority Wildlife" (Landscape Maps). Under this permit-by-rule, the Department is proposing to address the on-the-ground impacts of this size turbine on endangered and threatened wildlife and plant species habitat rather than operational impacts. In order to prevent development that would have adverse on the ground effects on endangered and threatened wildlife species habitat , proposed N.J.A.C. 7:7-7.2(a)12iv provides that, with limited exceptions, development proposed to be located in an area mapped as threatened or endangered species habitat will not qualify for this permit-by-rule, but must undergo Department review to determine if the development should be approved and, if it is appropriate, what conditions may be necessary to assure that the particular habitat involved is not negatively impacted. There are two exceptions to this limitation. First, if the wind turbine will be located within 120 feet of an existing building on actively maintained lawn or areas of land that have been manipulated through landscaping and continue to be so maintained. Second, if the wind turbine will be located on existing impervious cover. In these situations, the Department is presuming that, regardless of the mapping, any adverse modification of habitat through site disturbance would be minimal given the scale of the development, its proximity to existing structures and ongoing disturbance in close proximity to the building**.**

Proposed N.J.A.C. 7:7-7.2(a)12v provides that any turbine more than 100 feet tall must be of monopole construction to qualify for this permit-by-rule. Thus lattice towers and guy wires will not be authorized under the permit-by-rule for wind turbines more than 100 feet tall. Wind turbines constructed using lattice towers have higher bird mortality, as the lattice work provides a perching area for birds, which may then fly into the rotating blades and be killed. Birds are also known to fly into and be killed by guy wires on tall structures.

Birds are affected by lighting on tall structures, particularly steady burning red solid state lights. In order to prevent adverse impacts on birds while allowing for lighting at ground level if desired for security concerns, N.J.A.C. 7:7-7.2(a)12vi provides that no lighting shall be placed on or directed at the wind turbines other than shielded ground level security lighting. Lighting is shielded when it is covered in a way that light rays are not emitted above the horizontal plane of the light.

N.J.A.C. 7:7-7.2(a)12vii requires that the number of turbines at the site not exceed three, either solely or in conjunction with a previous wind turbine development. The number of turbines authorized under this permit-by-rule is limited to one to three turbines to ensure that the on-the-ground impacts associated with the construction of these facilities are minimized. Such impacts include the amount of impervious cover or the clearing of vegetation on a site.

Permit-by-rule for the installation of solar panels at a single family home or duplex lot

The proposed new permit-by-rule at N.J.A.C. 7:7-7.2(a)13 authorizes the installation of solar panels at a single family home or duplex on a maintained lawn or areas of land that have been manipulated through landscaping and are maintained as such**.** This permit-by-rule has been limited to solar panels located at single family homes or duplexes because the size of the solar panels at single family homes or duplexes does not require significant site disturbance and therefore does not require a review.

Proposed N.J.A.C. 7:7-7.2(a)13i precludes the utilization of the proposed permit-by-rule where the solar panels are proposed to be placed in dunes, beaches, wetlands, floodways and coastal bluffs because of the environmentally sensitive nature of these areas, and their vulnerability to flood damage. Proposed N.J.A.C. 7:7-7.2(a)13ii requires a setback from wetlands, beaches and dunes so that these areas will be protected from site disturbance associated with the proposed development. In recognition that development in the coastal area may have been subject to a coastal permit that required areas to remain vegetated to comply with Coastal Zone Management rules, N.J.A.C. 7:7E, proposed N.J.A.C. 7:7-7.2(a)13iii provides that the permit-by-rule does not apply where such restrictions are in place.

As described above, the Department developed the Landscape Maps, mapping areas of endangered or threatened wildlife species habitat. N.J.A.C. 7:7-7.2(a)13iv is proposed to protect these species and habitats from site disturbance. In most cases, the permit-by-rule does not apply in areas mapped as endangered or threatened species habitat. There are two exceptions to this limitation. First, if the solar panel will be located within 120 feet of an existing building on actively maintained lawn or areas of land that have been manipulated through landscaping and continue to be maintained as such. Second, if the solar panel will be located on existing impervious cover. In these situations, the Department believes that, regardless of the mapping, any adverse modification of habitat through site disturbance would be minimal given the scale of the development, its proximity to existing structures and ongoing disturbance at the single family home or duplex lot.

Coastal general permits for the construction of wind turbines

In addition to the proposed new permits-by-rule described above, the Department is proposing two new coastal general permits for the construction of wind turbines. These new coastal general permits are intended to facilitate review and construction of wind turbines in appropriate locations, thereby assisting the State in meeting its renewable energy goals while minimizing impacts to environmentally sensitive areas. A coastal general permit follows a more streamlined permitting process than an individual coastal permit.

N.J.A.C. 7:7-7.30 Coastal general permit for the construction of one to three wind turbines less than 200 feet in height and having a cumulative rotor swept area no greater than 4,000 square feet

N.J.A.C. 7:7-7.30 is a new coastal general permit for the construction of one, two or three wind turbines on land subject to certain criteria. As described above, the potential impacts on birds and bats from the construction of wind turbines relate to a number of factors, including the height and rotor swept area of the turbine. After analyzing the potential impacts from these factors, the Department determined that the proposed

permit-by-rule at N.J.A.C. 7:7-7.2 should be limited to wind turbines less than 200 feet tall with a rotor swept area no greater than 2,000 square feet. In order to consider the potential impacts of turbines that are less than the 200 feet height limit of the permit-by-rule proposed at N.J.A.C. 7:7-7.2(a)12 but have a larger rotor swept area, the Department, at N.J.A.C. 7:7-7.30, is proposing a new coastal general permit.

The criteria for this coastal general permit differ from those of the permit-by-rule only in three aspects. First, in accordance with proposed N.J.A.C. 7:7-7.30(a), the proposed general permit would be applicable to wind turbine development(s) with a cumulative rotor swept area limitation of 4,000 square feet rather than the 2,000 square feet limitation applicable to the permit-by-rule under N.J.A.C. 7:7-7.2. Secondly, authorization under the coastal general permit is not prohibited in areas mapped as threatened or endangered species habitat on the Landscape Maps as it is under the permit-by-rule in all but the limited circumstances described at N.J.A.C. 7:7-7.2(a)12iv(1) and (2). Instead, proposed N.J.A.C. 7:7-7.30(a)4 requires compliance with the standards of the Endangered or threatened wildlife or plant species habitat rule, N.J.A.C. 7:7E-3.38 and the Critical wildlife habitat rule, N.J.A.C. 7:7E-3.39. Because authorization under a coastal general permit requires the submission of an application to and review by the Department, the Department is able to review the proposed wind turbine(s) to consider and address potential wildlife impacts. The application must contain all information necessary to determine compliance with the Endangered or threatened wildlife or plant species habitat rule and the Critical wildlife habitat rule. The requirement proposed at N.J.A.C. 7:7-30(a)4 will enable the Department to protect these habitats and species through review of the proposed turbines under these rules.

Lastly, due to the larger size of these turbines, in order to assess the impact of the operation of these wind turbines on avian and bat species, post-construction monitoring will be required of the first 15 wind turbine developments (ranging in scope from one to three turbines) constructed under this coastal general permit, in accordance with proposed N.J.A.C. 7:7-7.30(a)8. Wind turbines with a rotor swept area of 2,000 square feet or smaller are typically residential, small-scale facilities, whereas those between 2,000 and 4,000 square feet are more likely to be associated with municipal, industrial or

commercial facilities. Data gathered from post-construction monitoring of the first 15 wind turbine developments greater than 2,000 square feet in size will enable the Department to evaluate the impacts of these somewhat larger turbines, and determine if operations are causing unanticipated levels of direct mortality to birds and bats. If it is determined that unanticipated mortality is occurring, this information would serve to guide the Department in proposing adjustments to this coastal general permit, and may be used to curtail turbine operations as provided at proposed N.J.A.C. 7:7-7.30(b). Because the Department does not anticipate that significant mortality will result from turbines that meet the criteria of this general permit, it believes that data from the first 15 projects constructed will provide sufficient information to assess the effect of these turbines on birds and bats. Post-construction monitoring shall consist of bird and bat carcass searches conducted for one full year beginning immediately after the wind turbines begin operation. These searches shall be accompanied by carcass removal and searcher efficiency trials. In order to ensure that the monitoring methodology collects accurate and comparable data, the methodology must be approved by the Department prior to initiation. The monitoring shall be at a frequency to ascertain mortality, and shall be accompanied by carcass removal and searcher efficiency trials to address potential loss of carcasses due to scavenging and accuracy of search, respectively. A report to the Department will be required in order for the Department to assess the impacts and determine if there is a need to propose amendments to the general permit for future wind turbine applications or curtail operations as described below. The Department has prepared a technical manual titled, "Technical Manual for Evaluating Wildlife Impacts of Wind Turbines Requiring Coastal Permits," which provides guidance on monitoring and reporting. The technical manual is available from the Department's Division of Land Use Regulation website www.state.nj.us/dep/landuse. The Department shall notify those permittees that are among the first fifteen constructed and are therefore required to monitor.

Proposed N.J.A.C. 7:7-7.30(b) provides that the Department may require the curtailment of wind turbine operations under certain conditions which could pose a high bird or bat mortality event. This provision is intended to reduce the impacts of the

operation of wind turbines on birds and bats during peak migration periods. Such condition will be imposed on specific wind turbine developments based on evolving science including scientific literature and monitoring results in the State and elsewhere. The curtailment shall not exceed 360 hours in a calendar year per turbine within the normal range of operation of the turbine. Given the size of these turbines, the Department does not anticipate that curtailment will be necessary, and this general permit allows their construction in areas that are restricted under the proposed general permit for larger turbines at proposed N.J.A.C. 7:7-7.31 and the proposed standards in the Coastal Zone Management rules at N.J.A.C. 7:7E-7.4(r). However, due to the limited information on the effects of such wind turbines, particularly in highly sensitive coastal areas, the Department is proposing this provision. The provision is necessary in the event that monitoring results show unanticipated mortality as it will provide a means to minimize such mortality. A more detailed description of curtailment is found at N.J.A.C. 7:7-7.31.

Application requirements that apply to all applications for coastal general permit authorization are found at N.J.A.C. 7:7-7.3. In addition, each coastal general permit contains information requirements specific to that coastal general permit. These requirements are based on the nature of the activity to which the coastal general permit applies and the conditions of the coastal general permit. Proposed N.J.A.C. 7:7-7.30(c) contains the information requirements for the proposed coastal general permit for the construction of one to three wind turbines less than 200 feet in height and having a cumulative rotor swept area no greater than 4,000 square feet. Proposed N.J.A.C. 7:7-7.30(c)1 requires five copies of a site plan that shows the location of the mean high water line, existing features including topography, structures, utilities, beach areas, dune areas, coastal bluffs, floodways, wetlands, and details of the proposed wind turbine, lighting and site disturbance. The site features and proposed construction details must be shown on the site plan in order for the Department to determine if the setbacks established in the coastal general permit are met. N.J.A.C. 7:7-7.30(c)2 and 3 require details about the proposed turbine, including an elevation plan, which will show the design type (for example lattice, guy wires, or single piling), the length of rotors, and the rotor swept area

and height of the proposed wind turbine. This information is necessary to determine compliance with the conditions of the coastal general permit. Post-construction monitoring of constructed wind turbines is required as a condition of the coastal general permit for the first 15 wind turbine developments constructed in accordance with this permit. Therefore, details of the proposed monitoring methodology are required at N.J.A.C. 7:7-7.30(c)4. Lastly, a compliance statement is required, wherein the applicant would demonstrate compliance with the criteria of the coastal general permit. The Department is requiring five copies of the site plan and five copies of the monitoring methodology and the compliance statement so that this information can be provided to the various offices in the Department that will review the applications.

N.J.A.C. 7:7-7.31 Coastal general permit for the construction of wind turbines less than 250 feet in height and having a cumulative rotor swept area no greater than 20,000 square feet

Since potential impacts to birds and bats are in part depend upon the height of the wind turbine and the rotor swept area, the Department is proposing an additional general permit at N.J.A.C. 7:7-7.31 for the construction of wind turbines that are less than 250 feet in height and have a cumulative rotor swept area no greater than 20,000 square feet. These wind turbines would be substantially larger than those authorized under the permit-by-rule proposed at N.J.A.C. 7:7-7.2(a)12 and the coastal general permit proposed at N.J.A.C. 7:7-7.30.

The restrictions on location of the wind turbines and requirements for setbacks from natural areas in this coastal general permit proposed at N.J.A.C. 7:7-7.31(a)1, 2 and 3 mirror those of the proposed general permit for wind turbines that are less than 200 feet tall with a rotor swept area greater than 2,000 square feet, but not greater than 4,000 square feet. These conditions are intended to protect the environmentally sensitive areas listed and to prevent development in a floodway. These areas are beaches, dunes, wetlands, coastal bluffs, tidal waters, and wild and scenic river corridors.

Turbines of this height and size may cause unacceptable levels of mortality to birds and bats in some locations. Accordingly, the Department has carefully evaluated the

land in the coastal zone and prepared a map that identifies specific areas on land where wind turbines 200 feet in height or taller or having a cumulative rotor swept area of greater than 4,000 square feet are unacceptable due to the operational impacts of the turbines on birds and bats. These areas are identified on the Department's Large Scale Wind Turbine Siting Map that is available for download on the Department's interactive mapping website at www.nj.gov/dep/gis. This map was produced in an effort to minimize the impacts of wind turbine operation to birds and bats. Proposed N.J.A.C. 7:7-7.31(a)4 requires that no portion of such wind turbine(s) including blades, towers and site disturbance be located in or over these areas. Areas identified on the Large Scale Wind Turbine Siting Map are those areas where the Department currently has wildlife data to make the determination that a wind turbine (or turbines) 200 feet in height or taller, or with a cumulative rotor swept area of greater than 4,000 square feet on a site, would pose a significant and unacceptable risk to birds and bats**.** Details on the methodology and justification used to map these areas can be found in the Large Scale Wind Turbine Siting Map report on the Department's website at www.state.nj.us/dep/landuse. The map is incorporated by reference at proposed N.J.A.C. 7:7E-7.4(r) and provisions for revising the map are proposed at proposed N.J.A.C. 7:7E-7.4(r)3, as described further in this summary.

The Department's Division of Fish and Wildlife mapped areas on land of documented bird concentration and nesting for resident threatened and endangered bird species, as well as areas of documented bird concentration and stopover locations for migratory songbirds, migratory raptors, and migratory shorebirds. Regional areas of high migratory bird concentration, such as the lower Cape May Peninsula and the Delaware Bayshore, were identified on the map. The Department mapped the most southerly 20 km of the Cape May peninsula and portions of the Delaware Bayshore as an area of highly significant bird concentration for many groups of migrating birds (raptors, songbirds, and shorebirds). Direct bay-to-ocean flight paths for Red Knots and other shorebirds have been documented in this portion of the peninsula. The mapped area included all land within the lower Cape May peninsula and continued northward to a point that is roughly 3-km north of Cape May Courthouse. The Delaware Bayshore was also represented on

this map and included all coastal wetlands (and all areas within 1 km of these wetlands) beginning at the lower 20-km boundary line and extending around the Delaware Bayshore to the northern side of the Cohansey River. These are areas where the Department has determined that the installation of wind turbine(s) 200 feet in height or taller, or having a cumulative rotor swept area greater than 4,000 square feet on a site, are unacceptable due to potential impacts on migratory and resident birds and bats.

The Lower Cape May peninsula, Delaware Bay, and Delaware Bayshore support a diverse and abundant assemblage of wildlife and are collectively considered one of New Jersey's, and the Country's, most valuable natural resources. Aggregates of more than 500,000 shorebirds use the Bay each year during spring migration. These shorebirds make daily cross-bay and cross-peninsula flights at low altitude in search of food and roost areas. Each May-June, a large percentage of the entire western Hemisphere's population of Red Knots is located along the bay. Other shorebird species (Ruddy Turnstone, Sanderling, Semipalmated Sandpiper, Dunlin, Short-billed Dowitcher) are also present in high numbers at this time. In addition, thousands of waterfowl winter in Delaware Bay. Of particular note are American Black Ducks since New Jersey winters one-third of all black ducks in the eastern United States (with significant concentrations in Delaware Bay wetlands) and tens of thousands pass through during both spring and fall migrations. . Finally, the Cape May region is home to one of the most celebrated raptor and songbird fall migrations in the world. These migrants become concentrated along the coast of the Delaware Bay and into the southern portion of the Cape May peninsula. The open water of Delaware Bay can create a temporary barrier to migrating birds, many of which are juveniles, causing them to "stopover" in these areas to rest and feed while awaiting favorable conditions for crossing.

The diversity and abundance of wildlife using the lower Cape May peninsula and Delaware Bayshore has lead to national and international recognition of these areas. For example, the Delaware Bay is designated as "Wetlands of International Importance" under the RAMSAR Convention (an intergovernmental treaty signed in 1971 and providing the framework for national action and international cooperation for the conservation and sustainable use of wetlands and their resources). See www.ramsar.org.

Similarly, the Cape May peninsula is considered by many authorities to be one of the top birding destinations in the world.

The Department also included a number of other regions of high bird concentration in the Large Scale Wind Turbine Siting Map. These additional regions are smaller in area than the Cape May Peninsula or Delaware Bayshore, but contain such documented high concentrations of avian use that the Department believes that large wind turbine development within theses area poses a significant risk to wildlife.

The species considered when delineating these regions were those documented to be at risk of colliding with wind turbines and/or those that exhibit flight patterns or behaviors that put them in collision risk. For example, Osprey forage at low altitudes and therefore often fly through what would be considered the "rotor swept zone" for both large and small turbines. Additionally, Osprey are one of species reported to have been struck and killed within the past three years at the Atlantic City wind facility. These factors combined led the Department to consider Osprey as a species that may be directly impacted by wind turbines. As such, occurrences of this species directly contributed to the mapping of regions in the Large Scale Wind Turbine Siting Map.

Biologists within the Department hand delineated the boundaries of the regions described below using GIS software and 2007 digital aerial photography. The Department included these regions or areas in the Large Scale Wind Turbine Siting Map, because they contained habitats known to receive high use by those avian species considered to be susceptible to collisions with large wind turbines. Contained within these regions are areas of high nesting concentrations of colonial long-legged wading birds, Osprey, Bald Eagles, Peregrine Falcons, Black Skimmers, Least Terns, and Piping Plovers as well as significant foraging habitats and major migratory stopover habitats for waterfowl, songbirds, shorebirds, and raptors. Additional details on the methodology and justification used to map these regions can be found in the Large Scale Wind Turbine Siting Map report on the Department's website at www.state.nj.us/dep/landuse.

The hand-delineated regions of high avian use include: 1) Hereford Inlet and the back-bay areas west of Stone Harbor for concentrations of beach-nesting birds, nesting long-legged wading birds, Osprey and migratory shorebird concentrations; 2) Great Egg

Harbor/Tuckahoe River for concentration of nesting Osprey, Bald Eagle wintering, and nesting Peregrine Falcons; 2) Little Egg/Brigantine Inlets, and Mullica River Region for high concentrations of wintering waterfowl, migratory shorebirds and songbirds, colonial nesting waterbirds, nesting Piping Plover and nesting Osprey; 3) Island Beach State Park and Sedge Islands Wildlife Management Area for high concentrations of migratory shorebirds, nesting Osprey, beach-nesting birds, nesting long-legged wading birds, wintering waterfowl and nesting Peregrine Falcons; 4) Gateway National Recreation Area - Sandy Hook Unit for high concentrations of Osprey, migratory songbirds and beach-nesting birds 5) Stow Creek and Mannington Meadows for high concentrations of nesting Bald Eagles; 6) Maurice River for nesting Osprey and Bald Eagle concentrations; and 7) Palisade Mountains for concentration of nesting Peregrine Falcons.

Critical habitats and flight paths for individual endangered or threatened bird species were also represented on the Large Scale Wind Turbine Siting Map. Location information for these species was obtained from the Department's Oracle-based Biotics Database, which is a database used to track the locations of endangered and threatened species throughout New Jersey. Only those documented species occurrences known to be active contributed to the areas identified on the Department's Large Scale Wind Turbine Siting Map. Furthermore, similar to the criteria used when mapping the regions described above, only those avian species with a documented, or anticipated, risk of colliding with wind turbines were considered in this mapping. The species (and life history categories from the Biotics Database) included in the mapping were: Black Skimmers (nesting colony), Black-crowned Night-heron (nesting colony), Yellow-crowned Night-heron (nesting colony), Least Tern (nesting colony), Piping Plover (nesting area), and Red Knot (non-breeding sighting). Locations characterized as migratory shorebird concentration sites were also mapped.

To identify critical habitats and flight paths for these species, active species occurrences areas (points, lines, and polygons) were taken from the Department's Biotics Database. In all cases, the locations of the species occurrence areas (for those species listed above) were first buffered by distances specific to each species. This form of buffering allowed areas/habitats in close proximity to the species occurrence to be

considered for final mapping. The Department recognizes that areas proximate to nesting sites or colonies of endangered or threatened species deserved special protection because adult birds make regular flights through these areas to forage, care for their chicks, and carry out courtship behaviors. Low altitude flights (at altitudes equivalent to rotor swept heights) are typical during the breeding season for the species considered in the Large Scale Wind Turbine Siting Map and these flight patterns increase their risk of collision with wind turbines. During the mapping process, biologists made every reasonable effort to remove unsuitable land-cover types from the buffer zone surrounding each species occurrences, provided that known flight paths remain within the mapped area. For example, nesting colonies of Least Terns that were documented to be active for a minimum of three years since 1995 were included in the mapping and were buffered by 400 meters. Within this 400-meter buffer, most urban areas were removed. However, if the Department had documented observations of flight paths for this species (e.g. movements from nesting areas to foraging areas), and those flight paths cross directly over urban areas, the urban areas were included in the mapping. Therefore, in some cases habitats that would typically be considered "unsuitable" for a particular species were including in the Large Scale Wind Turbine Siting Map because they fell within a known flight path for an endangered or threatened species. The following buffer distances were applied: 1) Black-crowned Night Heron (nesting colony) and Yellow-crowned Night Heron (nesting colony) – 300 meters; 2) Black Skimmer (nesting colony) and Least Tern (nesting colony) – 400 meters; and 3) Red Knot (non-breeding) and Shorebird Concentrations sites – 1000 meters. A detailed justification of buffer size and a species-by-species description of the hand selection/removal process of land-cover types can be found in the Department's Large Scale Wind Turbine Siting Map Report at www.state.nj.us/dep/landuse.

Proposed N.J.A.C. 7:7-7.31(a)4 provides that only wind turbine(s) that are not located in areas identified on the Department's Large Scale Wind Turbine Siting Map or in areas that are within one-quarter mile of the areas identified on the Department's Large Scale Wind Turbine Siting Map are eligible for the proposed general permit. Large wind turbine development is not eligible for the proposed general permit within this one-

quarter mile buffer zone because the Department believes that large wind turbines constructed this close to areas identified on the Department's Large Scale Wind Turbine Siting Map may result in unacceptable impacts to birds and bats. Therefore, the detailed review afforded by an individual permit application is required for large scale wind turbines in these areas so that the Department can make a case-by-case determination of the suitability of these areas for large scale wind turbines. Furthermore, the general permit does not apply to wind turbines located in areas mapped as Endangered or threatened wildlife species habitat on the Department's Landscape maps, as a detailed site specific review is necessary at such locations. Additionally, N.J.A.C. 7:7-7.31(a)5 requires compliance with the Critical wildlife habitat rule, N.J.A.C. 7:7E-3.39.

Proposed N.J.A.C. 7:7-7.31(a)6 specifies that the cumulative rotor swept area cannot exceed 20,000 square feet on a site. This limitation, similar to the limitations on height and the restrictions on specific areas, is proposed to limit the potential impact to both birds and bats, which increase as the size of wind turbines increases. Further, as discussed previously, consistent with proposed N.J.A.C. 7:7-7.30(a)6, proposed N.J.A.C. 7:7-7.31(a)7 requires wind turbines more than 100 feet in height to be a freestanding monopole design. Guy wires and lattice towers are prohibited. In addition, proposed N.J.A.C. 7:7-7.31(a)8 imposes lighting restrictions on these turbines. As noted previously, birds are affected by lighting on tall structures. In order to minimize adverse impacts on birds, proposed N.J.A.C. 7:7-7.31(a)8, restricts lighting to that necessary to comply with Federal Aviation Administration requirements which apply due to the height of the structure. However, consistent with proposed N.J.A.C. 7:7-7.30(a)7, ground level security lighting is allowed to address security concerns.

The final condition that must be met to qualify for this proposed coastal general permit, a requirement for post-construction monitoring, is proposed at N.J.A.C. 7:7-7.31(a)9. Similar to the requirement at proposed at N.J.A.C. 7:7-7.30(a)8 for wind turbines that are less than 200 feet in height that have a rotor swept area between 2,000 and 4,000 square feet, monitoring shall be conducted for one year. Monitoring shall include carcass searches, searcher efficiency trials and scavenger removal studies. For these larger turbines, the monitoring requirement will not be limited to the first 15 wind

turbine developments constructed under this coastal general permit. Because these larger turbines are likely to have a significantly greater impact, this information is necessary to allow the Department to determine if the operation of these turbines is causing unanticipated bird/bat mortality. Monitoring results will be used by the Department to evaluate the impacts of these turbines, and determine if operations need to be curtailed under certain conditions, or changes to this coastal general permit are needed.

Proposed N.J.A.C. 7:7-7.31(b) provides that the Department may require the curtailment of wind turbine operations during peak migration periods when migrating birds or bats would likely be flying at the height of the rotor swept area or be present at seasonally high densities throughout the entire air column. These periods occur in the both the spring (April through June) and fall (August through November). The Department proposes to limit the curtailment to 360 hours per turbine in a calendar year. Wind turbines have a normal range of operations, which factors in wind speeds, temperatures and icing, among other factors. The 360 hours would be counted as those times within the normal operational range of the turbine that limitations were in effect on operations. Potential curtailment measures include establishing a minimum wind speed that must be achieved prior to starting operations and shutting down operations during certain weather conditions or migratory events. Weather conditions that may necessitate curtailment include low wind speeds, low altitude cloud cover, strong storms, or approaching weather fronts favorable to bird or bat migration (such as northwest winds in the fall or southerly winds in the spring). Bats appear to be most susceptible to collisions during their peak fall migration (likely August – September) on nights of low wind conditions (Arnett et. al, 2008). Where bat mortality is of concern, an example of curtailment could be an increase to cut-in speed (an additional 2-3 meters per second) during periods of peak migration. The cut-in speed is the lowest speed at which electricity generated by the wind turbine would enter the power grid. This has already been shown to reduce bat fatalities between 50-87 percent (Arnett et. al, 2009, Baerwald et al. 2009, O. Behr, University of Erlangen, unpublished data). Curtailment for birds could occur during either spring (April-June) or fall migrations (August-November) and would likely be on days or nights with low altitude cloud cover (when birds fly lower and

are more likely to be in the vicinity of the rotor swept area) or just ahead of a weather front that would result in a mass migration event (e.g. northwest winds during fall migration) (Richardson, 1998). For birds, an example of a curtailment would be a complete shutdown of the turbines until the visibility improved or the front passed. A pilot project is currently underway in Texas experimenting with "real-time" temporary shutdowns of turbines. Radar units at the site track the movement patterns of birds during peak migration periods from up to 4 miles away. This information is combined with weather data to automatically shutdown the turbines if collision risk appears to be imminent. If the pilot study proves that this technique is successful in reducing collisions it could also be applied in New Jersey (http://www.detect-inc.com/wind.html). The specific measures applicable will be developed by the Department using monitoring results and evaluating published and unpublished studies or data.

The Department believes that 360 hours of turbine curtailment during a year is conservative given that coastal New Jersey lies along the Atlantic Flyway, which is a major migration corridor for many species. The diversity of species using this corridor results in migrating species moving through New Jersey's airspace for as many as 9 months of the year (http://www.njaudubon.org/Research/records.html). Therefore, 360 hours of potential (not necessarily actual) curtailment represents only 5.5 percent of the migration period. In addition, as noted above, some curtailment could be accomplished through a change in cut-in speed, rather than a total shutdown. This would likely result in low monetary losses as the generators do not produce a lot of energy at low wind speeds.

Curtailment may not be required of each wind turbine facility and may not be required in each year or season. For the initial authorizations under the proposed general permit, the Department is unlikely to require curtailment in the first year, to allow for the monitoring to gather data during operations under all conditions and time periods. The Department will notify the permittee in writing when curtailment is required, beginning the first year that it is required for the permitted facility. Such notification will be made by March 15th of the first year curtailment is required during the spring migration and by July 15th of the first year curtailment is required during the fall migration. The 360 hours may be split between the spring and fall migrations. For example, if data indicates that

raptors are of more concern in a particular region or facility, the Department may require that the hours of shut down be applied later in the fall migration rather than in the spring migration. This information shall also be made available on the Department's website at www.state.nj.us/dep/landuse. The following are the references cited above:

Arnett, E. B., K. Brown, W. P. Erickson, J. Fiedler, T. H. Henry, G. D. Johnson, J. Kerns, R. R. Kolford, C. P. Nicholson, T. O'Connell, M. Piorkowski, and R. Tankersley, Jr. 2008. Patterns of fatality of bats at wind energy facilities in North America. Journal of Wildlife Management 72: 61–78.

Arnett, E.B., M. Schirmacher, M.M.P. Huso, J.P Hayes. 2009. Effectiveness of changing wind turbine cut-in speed to reduce bat fatalities at wind facilities. Annual report prepared for the Bats and Wind Energy Cooperative and the Pennsylvania Game Commission pg.1-45.

Baerwald, E.F., J. Edworthy, M. Holder, and R.M.R. Barclay. 2009. A large-scale mitigation experiment to reduce bat fatalities at wind energy facilities. Journal of Wildlife Management 73: in press.

Richardson, W.J. 1998. Bird migration and wind turbines: migration timing, flight behavior and collision risk. Proceedings of the National Wind Coordinating Collaborative. pp 132-140. May 1998. San Diego, California.

The application requirements specific to this proposed coastal general permit are proposed at N.J.A.C. 7:7-7.31(c). These requirements are the same as those described above for the coastal general permit proposed at N.J.A.C. 7:7-7.30, except that proposed N.J.A.C. 7:7-7.31(c)1ii requires that the limits of areas identified on the Department's Large Scale Wind Turbine Siting Map and areas within one-quarter mile of the mapped areas be shown on the site plan for this general permit. These provisions identify the

information necessary for the Department to determine whether a proposed project meets the criteria of the coastal general permit.

N.J.A.C. 7:7E Coastal Zone Management Rules

SUBCHAPTER 3. SPECIAL AREAS

7:7E-3.38 Endangered or threatened wildlife or plant species habitats

As noted previously, endangered and threatened species include wildlife that are facing possible extinction in the State in the immediate future due to loss of suitable habitat, and past overexploitation through human activities or natural causes. The Endangered or threatened wildlife or plant species habitats rule, N.J.A.C. 7:7E-3.38, contains a definition of endangered or threatened wildlife or plant species habitats as well as standards to protect these species and their habitats. The Department is proposing to modify the definition of endangered or threatened wildlife or plant species habitats at N.J.A.C. 7:7E-3.38(a) to make it clear that the habitat includes both terrestrial and aquatic (marine, estuarine or freshwater) habitats as well as those areas that serve an essential role as corridors for movement of endangered or threatened wildlife. This would include, for example, seasonal migratory routes and daily routes between foraging and roosting or nesting habitats. For example colonial waterbirds, such as yellow-crowned night-herons and least terns, nest within large colonies that are typically separated from the foraging habitat that the birds in the colony use. The movement corridors between the foraging areas and the nesting colony are part of the essential habitat for these birds. Similarly, raptors often follow shorelines in their annual spring and fall migration between breeding and wintering areas. These migratory paths are part of the essential habitat for migrating raptors.

7:7E-3.49 Atlantic City

Atlantic City has been identified as a special area under the Coastal Zone Management rules due to its designation as a location for casino gaming in a referendum approved in 1976. Since the inception of casino gaming, Atlantic City has been extensively redeveloped, including the construction of high rise hotel-casinos along the

oceanfront and redevelopment of the former amusement piers. The existing special area rule allows the redevelopment of five ocean piers in accordance with N.J.A.C. 7:7E-3.49(c). N.J.A.C. 7:7E-3.49(c)5 limits the height of structures on the pier to 100 feet, with the exception of decorative architectural elements and amusement rides, which shall not exceed 200 feet in height. Given the height of the buildings and other structures allowed in Atlantic City, the Department is proposing to amend N.J.A.C. 7:7E-3.49(c)5 to include wind turbines constructed on the piers in the exception to the 100 foot height limitation, so that a wind turbine could be constructed on the pier up to 200 feet in height. The proposed amendment is not anticipated to result in increased impacts to wildlife since the rule currently allows structures up to 200 feet in height and buildings greater than 300 feet tall line the shoreline immediately adjacent to the piers. All other applicable Coastal Zone Management rules would continue to apply to such wind turbines.

SUBCHAPTER 3C. STANDARDS FOR CONDUCTING AND REPORTING THE RESULTS OF AN ENDANGERED OR THREATENED WILDLIFE OR PLANT SPECIES HABITAT IMPACT ASSESSMENT AND/OR ENDANGERED OR TREATENED WILDLIFE SPIECES HABITAT EVALUATION

7:7E-3C.2 Standards for conducting Endangered or Threatened Wildlife or Plant Species Habitat Impact Assessments

N.J.A.C. 7:7E-3C.2 contains the standards for conducting Endangered or threatened wildlife or plant species habitat impact assessments. This assessment is required to demonstrate that a proposed development would not directly or through secondary impacts on the relevant site or surrounding area, adversely affect endangered or threatened wildlife or plant species habitat. N.J.A.C. 7:7E-3C.2(c) provides that the assessment shall be based on the manner in which the proposed development may alter habitat, and lists a number of habitat components that must be considered in that analysis. Although this list is not all-inclusive, the Department in proposing to add substrate, bathymetry, salinity and wildlife movement corridors to the list of components to be addressed in recognition that endangered and threatened wildlife and plant species habitat includes aquatic habitat and movement corridors.

SUBCHAPTER 7. USE RULES

7:7E-7.4 Energy facility use rule

The Energy facility use rule contains the standards specific to various energy uses. N.J.A.C. 7:7E-7.4(b) contains standards relevant to siting of any new energy facilities, whereas N.J.A.C. 7:7E-7.4(d) through (s) contain standards specific to a particular type of energy use. The Department proposes to amend the energy facility siting standards at N.J.A.C. 7:7E-7.4(b) to reduce the existing setback for wind and solar energy facilities. The rule currently requires that new energy facilities that are not water dependent be located at least 500 feet inland of the mean high water line of tidal waters. Proposed N.J.A.C. 7:7E-7.4(b)3 would reduce the setback to 50 feet for wind and solar energy facilities, since these facilities would not be anticipated to have the same mass and impact as other energy facilities addressed by this rule**.** The Department believes that reducing the setback from 500 to 50 feet will facilitate siting of these renewable energy facilities while providing an adequate setback for wildlife use of tidal waters.

In addition, the Department is proposing amendments to N.J.A.C. 7:7E-7.4(b) that would allow the construction of wind turbines on the existing ocean piers in Atlantic City, as discussed previously, as well as the construction of a wind energy facility that is limited in scope in the ocean waters of New Jersey. Specifically, N.J.A.C. 7:7E-7.4(b)3ii would allow the construction of a maximum of five wind turbines, with each turbine's power rating as determined by the manufacturer not to exceed 5 megawatts. The proposed rule would require that the turbines be located within the State's ocean waters between Seaside Park and Stone Harbor and at least 2.5 nautical miles offshore. Since January 2008, the Department has been conducting a baseline study in the ocean waters off New Jersey. The Department is gathering data regarding the abundance and distribution of birds, marine mammals and sea turtles in an area that reaches 20 nautical miles offshore, between Seaside Park and Stone Harbor. Details on the study and reports can be found at http://www.nj.gov/dep/dsr/ocean-wind.

The overall goal of the study is to provide spatial and temporal data on species utilizing New Jersey offshore waters to assist in determining potential areas for wind power development. The study is intended to address the following questions:

1. What are the abundance, distribution, flight behavior (i.e., height and regular pathways), and utilization (for example, feeding, breeding) of bird species in the Study Area?
2. What are the abundance, utilization (for example, feeding), and distribution of marine mammals in the Study Area?
3. What are the abundance, utilization (for example, feeding), and distribution of sea turtles in the Study Area?
4. What are the abundance, utilization, and distribution of other marine biota (for example, fish, shellfish) in the Study Area?
5. What is the distribution of other existing natural resources, including, but not limited to, shoals and sand?
6. Using predictive modeling, mapping, and environmental assessment methodologies, what portions of the Study Area are more or less suitable for energy power facilities based on potential ecological impacts?

Three primary field surveys (Avian, Marine and Aquatic) are being conducted through this study. All wind power impacts data in the United States have been collected in terrestrial systems. Using methods utilized in European studies of offshore wind power, the baseline study will assess the spatial and temporal distribution of avian species (including migratory and resident species), marine mammals and sea turtles, and marine fish and shellfish off the coast of New Jersey, throughout the year.

Final results of this study will not be available until June of 2010. The Department believes that a small-scale demonstration project within the study area in State waters will be useful in assessing the impacts of large scale wind turbines located offshore of New Jersey. The impact assessment can be used in conjunction with the predictive modeling developed as part of the baseline study to assist the Department in siting potential wind energy facilities in New Jersey's offshore waters. Because the results of

the baseline study will not be available until June 2010 and the impacts of the construction of large scale wind turbines in offshore waters are not well understood, the Department is limiting the number of wind turbines allowed in New Jersey's offshore ocean waters to five. While the Department is limiting the number of wind turbines in State waters, there is no such limitation on the construction of wind turbines in Federal waters. Development of wind turbines in Federal waters is subject to regulation by the Minerals Management Service. The Federal Regulations for Renewable Energy and Alternative Uses of Existing Facilities on the Outer Continental Shelf at 30 C.F.R. 285 provide for a detailed site assessment as well as construction and operation planning, including biological resources surveys and impact assessments, prior to approval for construction. The Department will participate in the Minerals Management Service leasing process through the Federal consistency provisions of the Federal Coastal Zone Management Act (see Section 307, 16 U.S.C. §§1456). The Coastal Zone Management rules are enforceable policies under New Jersey's Federally approved Coastal Management Program.

N.J.A.C. 7:7E-7.4(r) contains the standards relevant to electric generating stations. N.J.A.C. 7:7E-7.4(r)1v specifies standards applicable to cogeneration facilities and facilities that use renewable forms of energy. The Department proposes to separate the standards for these two types of facilities into separate subparagraphs. The standard for cogeneration of electricity and process steam is proposed to remain at N.J.A.C. 7:7E-7.4(r)1v with no change in substance. The standard for renewable facilities is proposed to be recodified as N.J.A.C. 7:7E-7.4(r)1vi with additional standards applicable to wind energy facilities proposed at N.J.A.C. 7:7E-7.4(r)1vii and viii.

The coastal land and waters areas of New Jersey are diverse. The Coastal Zone Management rules address a wide range of land and water uses, and natural and cultural, social and economic resources in the coastal zone. In addition to complying with the specific use rule, proposed wind turbines must comply with all other applicable Coastal Zone Management rules, including special area and resource rules. Special areas are areas that are so naturally valuable, important for human use, hazardous or sensitive to

impact or particular in their planning requirements, as to merit focused attention and special management rules. The resource rules are used to analyze the proposed development in terms of its effects on various resources of the built and natural environment of the coastal zone, both at the proposed site as well as the surrounding region. Compliance with the standards of these rules will ensure that affects of wind turbines on resources such as wild and scenic river corridors, marine mammals and fisheries are addressed.

As described above, as the height and size of wind turbines increase, so does the potential for adverse impacts to both birds and bats due to the operation of wind turbines. In order to minimize adverse effects of wind turbines on birds and bats, the Department is proposing N.J.A.C. 7:7E-7.4(r)1vii and viii specific to the construction of wind energy facilities on land and in the water.

As described previously, the Department has identified specific areas on land, where, based on current wildlife data, wind turbines 200 feet in height or taller, or having a cumulative rotor swept area greater than 4,000 square feet on a site, would pose a great risk to birds and bats during operation. Therefore, their construction in these locations is unacceptable. These areas are identified on the Department's Large Scale Wind Turbine Siting Map that is available for download on the Department's interactive mapping website at http://www.nj.gov/dep/gis. Proposed N.J.A.C. 7:7E-7.4(r)1vii(1) provides that no portion of any wind turbine 200 feet in height or taller, or having a cumulative rotor swept area greater than 4,000 square feet on a site, can be located in the areas identified on the map. Wind turbines located in areas outside those identified by the Department on the Large Scale Wind Turbine Siting Map may pose the same operational risk to birds and bats as those identified on the map. In these areas, a determination of the acceptability of wind turbines requires a case-by-case review of site specific information that would be submitted as part of the permit application and a case-by-case review such as the review afforded by the Endangered and threatened wildlife and plant species habitat and Critical wildlife habitat rules at N.J.A.C. 7:7E-3.38 and 3.39, respectively.

Birds are affected by lighting on tall structures, particularly steady burning red solid state lights. In order to minimize adverse impacts on birds, proposed N.J.A.C. 7:7E-

7.4(r)1vii(2) and viii(1), restrict lighting of wind turbines. These standards provide that no lighting shall be placed on or directed at the wind turbines other than shielded security lighting and lighting needed to comply with Federal Aviation Administration or United States Coast Guard requirements. On land, lighting could be directed at turbines from lights placed on the ground or other structures. Therefore, N.J.A.C. 7:7E-7.4(r)1vii(2) also stipulates that no lighting be directed at the wind turbines. This requirement is similar to the lighting requirements of the coastal general permits proposed at N.J.A.C. 7:7-7.30(a)7 and 7.31(a)8.

Proposed N.J.A.C. 7:7E-7.4(r)1vii(3) and viii(2) address the type of tower to be used. As described previously, lattice towers and guy wires are associated with a higher mortality of birds as they provide perching or roosting opportunities for birds which may then fly into the blades or wires. Therefore, proposed N.J.A.C. 7:7E-7.4(r)vii(3) prohibits the use of lattice towers and guy wires for wind turbines located on land that are over 100 feet in height and requires the use of a monopole. Due to the differences in construction techniques for wind turbines located on land and in the water, proposed N.J.A.C. 7:7E-7.4(r)viii(2) allows flexibility in the tower design provided such design does not provide perching or roosting opportunities for birds.

Proposed N.J.A.C. 7:7E-7.4(r)1vii(4) and viii(3) address monitoring requirements. Monitoring results will be used by the Department to evaluate the impacts of these turbines, and determine the extent to which operations are causing direct mortality to birds and bats and whether further amendments to the Coastal Zone Management rules are necessary. For wind turbines located on land, proposed N.J.A.C. 7:7E-7.4(r)1vii(4) requires pre and/or post-construction monitoring to establish the flight patterns and distribution of avian species and bats and impacts of the operation of these facilities on these species. Information shall be gathered on species composition, abundance, distribution, behavior and flight pattern heights, as well as collisions associated with wind turbine construction and/or operation. Pre and/or post construction monitoring is dependent upon the scope of the facility including the number, height and rotor swept area of the turbines. For example, all wind turbines 250 feet in height or taller will be required to conduct pre-construction monitoring, which may include visual, radar and

acoustic surveys. With the exception of the first 15 wind turbine developments constructed under the coastal general permit proposed at N.J.A.C. 7:7-7.30, post construction monitoring, which may include carcass and visual surveys, will be required for all wind turbines unless they are less than 200 feet tall, number fewer than four at a site, and have a cumulative rotor swept area not to exceed 4,000 square feet. The Department has prepared a technical manual titled, "Technical Manual for Evaluating Wildlife Impacts of Wind Turbines Requiring Coastal Permits," which provides guidance on monitoring and reporting. The technical manual is available from the Department's Division of Land Use Regulation website www.state.nj.us/dep/landuse.

For wind facilities located in water, proposed N.J.A.C. 7:7E-7.4(r)1viii requires a habitat evaluation, impact assessment and post-construction monitoring to establish the abundance, distribution, and behavior of avian species, bats, and marine organisms and assess the impacts of the construction and/or operation of these facilities on these species. There is limited information on the abundance, distribution and behavior of these species offshore New Jersey. Although the Department is gathering data regarding the abundance and distribution of birds, bats, marine mammals and sea turtles through Ecological Baseline studies, they are at a broad rather than site specific scale. See http://www.nj.gov/dep/dsr/ocean-wind. Moreover, there is limited information regarding impacts to avian species, bats and marine organisms from offshore wind turbines due to the limited number of installations worldwide and due to the fact that those that have been constructed are in different environments where different species are present. Therefore, the applicant will be required to gather information on species composition, abundance, distribution, behavior and, for avian species and bats, flight pattern heights, as well as collisions and behavioral changes associated with wind turbine construction and/or operation in order to determine the acceptability of wind turbines at a specific location in tidal waters. The Department's technical manual titled, "Technical Manual for Evaluating Wildlife Impacts of Wind Turbines Requiring Coastal Permits, which provides guidance on habitat evaluations and assessments, monitoring and reporting. The technical manual is available from the Department's Division of Land Use Regulation website www.state.nj.us/dep/landuse. Requirements will be coordinated with the United

States Fish and Wildlife Service, National Marine Fisheries Service, and if in federal waters, the Minerals Management Service, all of which have authority and expertise in these areas.

Post-construction monitoring is necessary to determine if constructed wind turbines are having significant adverse affects. Monitoring technologies are changing rapidly and some typical accepted monitoring techniques, such as carcass searches, would not be practical in the water. The Department will continue to evaluate emerging technologies, working with the United States Fish and Wildlife Service, Minerals Management Service and other federal agencies, to determine appropriate post-construction monitoring protocols. In addition, the Department will use information gained through the Ecological Baseline studies to refine protocols. An example of emerging technology for this type of work is thermal imaging systems that are able to detect species by detecting body heat signatures in complete darkness and through various inclement weather types, such as fog.

Proposed N.J.A.C. 7:7E-7.4(r)1vii(5) and viii(4) provide that curtailment of operations of wind turbines may be required under certain conditions during peak migration periods when migrating birds or bats would likely be flying at the height of the rotor swept area or be present at seasonally high densities throughout the entire air column, as discussed previously.

Proposed N.J.A.C. 7:7E-7.4(r)3 contains provisions addressing the revision of the Large Scale Wind Turbine Siting Map. The Department may determine that revisions to the map are needed in order to minimize adverse effects on birds and bats. Map revisions may be required based on new information on species occurrence or new information on appropriate buffers. In addition, as monitoring is conducted in New Jersey and elsewhere, new information on impacts may become available that lead to a need to change the map.

Proposed N.J.A.C. 7:7E-7.4(r)3i sets forth the procedure that the Department will follow to provide the public notice of the proposed revision and an opportunity for public involvement in the revision process. First, the Department shall publish notice of its intent to revise the map in the New Jersey Register, including a description of the

proposed revision and an explanation of why it is being proposed. The Department will also post the proposed revision of the map on its interactive mapping website at www.nj.gov/dep/gis and publish notice in a newspaper that is generally circulated within each county affected. This notice shall include relevant information related to the proposed revision, and an invitation for interested parties to provide comment to the Department for a period of 30 days.

Proposed N.J.A.C. 7:7E-7.4(r)3ii provides that, upon consideration of the available information and public comments, if the Department concludes that revising the map is appropriate based on the potential risk to birds and bats associated with the operation of large scale wind turbines, the Department will revise the map as appropriate, publish a description of the revision in the New Jersey Register as well as in one newspaper of general circulation in the county. The Department will also post the revised map on the Department's interactive website.

Existing N.J.A.C. 7:7E-7.4(r)3, which contains the rule rationale, is being recodified as N.J.A.C. 7:7E-7.4(r)4 with no changes in text proposed.

7:7E-7.14 High rise structures

The High rise structures rule contains standards at N.J.A.C. 7:7E-7.14(b) intended to ensure that high-rises structures, which can present a visual intrusion, cast shadows on beaches, and in some case cause adverse traffic impacts, are sited in suitable locations in the coastal zone. The rule contains exceptions at N.J.A.C. 7:7E-7.14(c) for certain development, notably development on the piers in Atlantic City, which cannot meet setback or waterfront orientation requirements, and utility structures provided there is a demonstrated need. Utility structures are structures such as communication towers and electric distribution structures. The Department is proposing to add wind turbines to the list of high-rise structures to which the high-rise structures rule does not apply. Wind turbines would not have the traffic or shadow impacts that high rise buildings might, and are more similar to utility structures. The Department believes that the visual impacts can be adequately addressed through the Scenic resources and design rule, N.J.A.C. 7:7E-8.12.

SUBCHAPTER 8. RESOURCE RULES

7:7E-8.12 Scenic resources and design

This rule is intended to apply to developments which, by their singular or collective size, location and design, could have a significant adverse effect on the scenic resources of the coastal zone. To prevent such adverse effects, the rule calls for visually compatible uses and requires at N.J.A.C. 7:7E-8.12(d) that open view corridors of the waterfront be maintained and that structures be separated from the beach, dune, boardwalk, or waterfront, whichever is further inland, by a distance equal to two times the height of the structure. Due to the significant height of wind turbines, this would require the taller turbines, those 200 to 300 feet in height, to be separated from the beach, dune or waterfront by 400 to 600 feet. The Department is proposing to amend this rule to provide an exception to the setback for wind turbines. These siting requirements provide that the scenic and visual qualities of coastal areas shall be maintained as important public resources in the siting of energy facilities. The Department has determined that the other criteria of the Scenic resources and design rule, N.J.A.C. 7:7E-8.12 (encouraging new development that is visually compatible with its surroundings in terms of building and site design while discouraging new development that is not visually compatible with existing scenic resources in terms of large-scale elements of building and site design), in conjunction with the siting requirements of the Energy facility use rule at N.J.A.C. 7:7E-7.4, are sufficient to ensure that effects on scenic resources are taken into consideration in the siting of wind turbines.

N.J.A.C. 7:13 Flood Hazard Area Control Act Rules

SUBCHAPTER 7. PERMITS-BY-RULE

7:13-7.1 General provisions for permits-by-rules

In order to achieve the renewable energy goals of the Energy Master Plan, the Department is proposing a permit-by-rule under the Flood Hazard rules that will encourage the installation of wind turbines in appropriate areas under the jurisdiction of the rules. Existing N.J.A.C. 7:13-7.1(b) explains permits-by-rule and lists those permits-

by-rule that are available under this rule at Table A. This section is amended only to add the proposed permit-by-rule to Table A.

7:13-7.2 Permits-by-rule

The Department is proposing a permit-by-rule for the construction of one, two or three wind turbines on land. The activities proposed to be permitted by rule meet the definition of a regulated activity under proposed N.J.A.C. 7:13-2.4. However, the Department has determined that the development of one to three wind turbines will have a *de minimis* impact on flooding and the environment if undertaken as prescribed in the proposed rule.

The new permit-by-rule at N.J.A.C. 7:13-7.2(b)19 authorizes the construction of one, two or three wind turbines on land provided certain criteria are met. For the same reasons explained for the new coastal permit-by-rule proposed at N.J.A.C. 7:7-7.2, in accordance with N.J.A.C. 7:13-7.2(b)19i and ii, respectively, the wind turbines must be less than 200 feet in height and must have a cumulative rotor swept area of no greater than 2,000 square feet to be eligible for this permit-by-rule. N.J.A.C. 7:13-7.2(a)9iii provides that the wind turbine tower and site disturbance shall not be located in floodways. Proposed N.J.A.C. 7:7-7.2(a)12ii, provides that no wind turbine tower or associated site disturbance be located in a floodway. This is necessary in order to protect the turbine from flood damage, since the depth and velocity of floodwaters present in the floodway portion of the flood hazard area would subject the wind turbine to unsafe conditions that could undermine and compromise the structural integrity of the tower. Furthermore, the placement of fill or structures within floodways obstructs flow and exacerbates nearby flooding conditions. The proposed permit-by-rule includes the same criteria at proposed N.J.A.C. 7:13-7.2(b)19iv through vii as the coastal permit-by-rule proposed at N.J.A.C. 7:7-7.2 with respect to endangered and threatened species habitat, monopole construction, lighting restrictions and number of turbines, for the reasons discussed earlier in the summary regarding the proposed coastal permit-by-rule.

At N.J.A.C. 7:13-7.2(b)19viii the proposed rule requires that the turbine development be located a minimum of 25 feet away from any top of bank or edge of water, since

stream banks can undermine if the stream migrates and thus threaten the integrity of the structure. This requirement is applicable to other types of construction, to storage and placement of fill, and is found throughout the rule in both the permits-by-rule and the individual permits. Proposed N.J.A.C. 7:13-7.2(b)19ix provides that, in order to be eligible for the permit-by-rule, the wind turbine development must not be considered a major development, as defined in the Stormwater Management rules at N.J.A.C. 7:8-1.2. This requirement ensures that no disturbance is permitted under this permit-by-rule that is inconsistent with the Stormwater Management rules (N.J.A.C. 7:8). A project that is considered major development must be reviewed for compliance with the Stormwater Management rules and such analysis cannot be accomplished under a permit-by-rule. The proposed permit-by-rule also provides at N.J.A.C. 7:13-7.2(b)19x and xi the same protection for vegetation and restoration requirements within the riparian zone that is required by other permits-by-rule in N.J.A.C. 7:13-7.2. Lastly, proposed N.J.A.C. 7:13-7.2(b)19xii requires that all wires and cables connected to the turbine be connected underground, except for guy wires, in order to minimize disturbance related to the clearing of vegetation and access required for ongoing maintenance.

Social Impact

The proposed new permits-by-rule and coastal general permits will have a positive social impact as they assist the State in meeting the New Jersey Energy Master Plan's renewable energy goals by facilitating the review and construction of wind turbines and solar panels in appropriate locations. Persons proposing to construct wind turbines or solar panels will benefit from the proposed coastal general permits and permits-by-rule because they will streamline the permit review process. Those persons whose project complies with the standards for a permit-by-rule will not have to submit a coastal or Flood Hazard permit application, including plans, application forms, photographs, notices and an application fee. For those projects that qualify for a coastal general permit, the application process will be shorter in duration and the submission requirements and application fees less than that of an individual coastal permit. The public will also benefit

from the proposed coastal general permits and permits-by-rule insofar as they facilitate the permitting of renewable energy sources in the coastal zone, providing a source of electricity that does not result in greenhouse gas emissions. As new wind facilities are constructed, they will be visible throughout the coastal zone, both in the landscape and the seascape if an offshore demonstration project is constructed. Some will perceive these views positively and some may view them negatively. Any negative perception is likely to be outweighed by the benefit of the renewable energy produced.

Economic Impact

The proposed permits-by-rule will have a positive economic impact on persons constructing wind turbines and solar panels as it will reduce the costs associated with obtaining a coastal permit. By permitting the installation of certain wind turbines and solar panels through a permit-by-rule, the costs associated with the coastal or Flood Hazard permit application fee and the preparation of a coastal or Flood Hazard permit application are eliminated, as no formal application to the Department is required provided the requirements of the permit-by-rule are met. The authorization of other wind turbines by a coastal general permit will reduce the coastal permit application fee and the permit application requirements as compared to an application for an individual permit. Moreover, the proposed rule amendments provide that wind turbines and solar panels are not regulated under CAFRA or the Waterfront Development Law in certain circumstances, thus eliminating the need for any coastal permit application.

The proposed new permits-by-rule streamline and simplify the permitting process for the installation of wind turbines and solar panels, eliminating the need for consulting and legal services for preparing an application for a coastal permit, whereas the proposed new coastal general permits would reduce those costs. The coastal general permits do include a requirement for post-construction monitoring for birds and bats. The Department estimates that this monitoring would cost $15,000 to $20,000. Monitoring is also required for individual permits for wind turbines that are at least 200 feet in height in accordance with the Energy facility use rule at N.J.A.C. 7:7E-7.4(r), which would apply to the review of individual coastal permit applications. Because of their greater size and

potential for serious adverse impact, additional monitoring will be required for the largest turbines, including radar studies and visual surveys. It is estimated that radar studies for wind turbines on land would cost $200,000 to $400,000 and visual surveys up to $150,000. Costs for habitat evaluation and post-construction monitoring for wind turbines located in tidal waters would be higher due to the nature of operating in the marine environment. These studies are essential since wind turbines are a new use in the coastal zone and internationally and their effects not clearly understood. In order to protect these sensitive coastal resources, data must be gathered as these projects are constructed and operate to evaluate their effects.

The proposal to amend the Atlantic City rule, N.J.A.C. 7:7E-3.49, to allow the construction of wind turbines up to 200 feet tall on existing piers in Atlantic City, to eliminate the setbacks from the water that currently apply to wind turbines in the High rise structure rule (N.J.A.C. 7:7E-7.14) and the Scenic resources and design rule (N.J.A.C. 7:7E-8.12), and to reduce the 500 foot setback in the Energy facility use rule (N.J.A.C. 7:7E-7.4) from 500 feet to 50 feet for wind turbines and solar panels will all have a positive economic effect as they will increase the locations where these renewable energy facilities can be constructed.

The proposed rule provides for the imposition of permit conditions for wind turbines that require curtailment of operations. The rule sets the maximum duration of potential curtailment of operations at 360 hours in a calendar year per turbine within the normal range of operation of the turbine. This limits any adverse economic effect on operations while providing protection to birds and bats in conditions where high mortality is found to be likely, a positive economic impact since birds and bats are an economic resource, with birds important to ecotourism and both providing ecosystem services, such as seed dispersion and insect control. The curtailment condition allows the construction of wind turbines in more coastal areas since it provides the Department a means to approve permit applications in areas where they would otherwise be likely to be denied due to these risks.

The Large Scale Wind Turbine Siting Map will add predictability in the permitting process. Areas identified on the Map are those areas where the Department currently has wildlife data to make the determination that a wind turbine (or turbines) 200 feet in

height or taller, or with a cumulative rotor swept area of greater than 4,000 square feet on a site, would pose a significant risk to birds and bats and would not comply with existing rules. Mapping these areas will make it clear to potential wind developers prior to applying for a coastal permit that large scale wind turbines in the mapped areas are unacceptable.

Federal Standards Statement

Executive Order No. 27(1994) and P.L. 1995, c.65 (amending N.J.S.A. 52:14B-1 et seq.) require that State agencies that adopt, readopt, or amend State rules include a statement as to whether the rule contains any standards or requirements that exceed those imposed by Federal law. The proposed permits-by-rule, coastal general permits and rule amendments do not exceed any Federal Standards or requirements under the Federal Coastal Zone Management Act or the Federal Clean Water Act as discussed below.

The Federal Coastal Zone Management Act (P.L. 92-583) was signed into law on October 27, 1972. The Act does not set specific regulatory standards for development in the coastal zone; rather it provides broad guidelines for states developing coastal management programs. The State's Coastal Management Program meets the guidelines established under the Federal Coastal Zone Management Program and the State of New Jersey has obtained approval from the National Oceanic and Atmospheric Administration to implement its program under the Federal Coastal Zone Management Act. These guidelines are found at 15 CFR Part 923. They include the basic components that must be included in a state's coastal zone management plan, including a requirement that the program provide for an orderly process for siting major facilities related to energy development. However, the federal guidelines do not set forth procedures by which individual activities within a state's coastal zone are to be regulated.

With respect to the proposed permit-by-rule at N.J.A.C. 7:13 – 7.2, the Department's authority for regulating development within flood hazard areas and riparian zones comes solely from State statute, specifically N.J.S.A. 58:16A-50 et seq., 58:10A-1 et seq., and 58:11A-1 et seq. The Flood Hazard rules are not promulgated under the authority of, or in order to implement, comply with, or participate in any program established under Federal

law or under a State statute that incorporates or refers to Federal laws, Federal standards or Federal requirements. Therefore, the Department has concluded that the proposed amendments do not exceed these Federal standards or requirements.

Environmental Impact

New Jersey's Energy Master Plan states: "Satisfying the world's appetite for energy contributes to the growing crisis of global climate change, and New Jersey's energy environment is contributing to this crisis." The Energy Master Plan notes that although New Jersey's contribution is small when measured against the rest of the world, we can help lead the way in reducing the threat of climate change, and position ourselves to be as economically competitive as possible as the world mobilizes to address that threat. Therefore, the Energy Master Plan sets the goal of meeting 30 percent of the State's electricity needs from renewable sources by 2020. This goal is to be met with both onshore and offshore wind development and increased solar energy production.

The proposed amendments address the regulation and permitting of wind turbines and solar panels within the coastal zone. The Department is proposing new coastal general permits and coastal and Flood Hazard permits-by-rule to facilitate review and construction of these facilities in appropriate locations. These amendments also describe those circumstances in which new wind turbines and solar panels do not require a coastal permit.

With respect to wind turbines on land, the provision of a tiered system of regulation will enable the Department to streamline review of coastal permit applications for those wind facilities that are not likely to have an adverse impact on resources of the coastal zone while assessing the potential impacts of larger scale wind turbines through a more detailed review process in order to protect these resources. In addition, the coastal general permits proposed at N.J.A.C. 7:7-7.30 and 7.31, and the amendments to the Energy facility use rule at N.J.A.C. 7:7E-7.4(r) include a requirement for post-construction monitoring for birds and bats. For the largest turbines, pre-construction monitoring will also be required. This information will enable the Department to

evaluate the effects of these wind turbines on birds and bats and modify its regulations accordingly and determine appropriate curtailment measures based on the data obtained. Moreover, the reduction of the 500 foot setback to 50 feet for wind turbines will provide more flexibility in their siting.

With respect to wind turbines in tidal waters, the rule amendments requiring habitat evaluation and impact assessment will enable the Department to evaluate applications for wind energy facilities proposed in those tidal waters not precluded by N.J.A.C. 7:7E-7.4(b), and post-construction monitoring requirements will provide an opportunity to evaluate effects of construction and operation of these facilities. Offshore wind turbines are a new use in ocean waters, and detailed information on marine resources and effects of wind energy facilities on these resources is limited. The Department's on-going baseline study will provide information to fill some of these data gaps. In addition, the proposed amendments would allow the construction of an offshore demonstration wind project in New Jersey's ocean waters that would provide useful information to assess the impact of wind turbines in ocean waters.

The proposed Flood Hazard and coastal permits-by-rule and coastal general permits contain specific standards and conditions that will ensure that the environmental impact of any new development associated with the installation of the wind turbines or solar panels is minimized. The Department has determined that the construction of these facilities under the proposed permits-by-rule and coastal general permits will cause only minimal adverse environmental impacts when performed at a single facility, and will have only minimal cumulative impacts on the environment. The Department has further determined that the proposed permits-by-rule and coastal general permits are in keeping with the legislative intent to protect and preserve the coastal area from inappropriate development. In addition, the proposed amendments to the Energy facility use rule protect living coastal resource. For wind turbines proposed on land, the identification of areas where large scale turbines can not be sited due to impacts on birds and bats during operation, and the lighting and tower design criteria, will reduce adverse impacts of these structures. For wind turbines proposed in water, the Department will require a habitat evaluation and assessment in order to establish the movement corridors and distribution

of avian species, bats, and marine organisms and impacts of the construction and/or operation of these facilities on these species.

Jobs Impact

The proposed amendments are not expected to have a significant impact on jobs. The proposed new permits-by-rule streamline and simplify the coastal permitting process for the installation of solar panels and the construction of wind turbines, thus eliminating the need for consulting and legal services for authorization under a coastal permit. However, such services may still be required for construction of these facilities under the proposed coastal general permits. The same benefits are realized for the proposed Flood Hazard permit-by-rule with respect to the preparation of a Flood Hazard permit application.

By facilitating the permitting of these facilities, the proposed amendments may encourage the construction of such facilities and therefore have a positive impact on the jobs associated with the construction of renewable energy facilities. In addition, it is anticipated that there may be some increase in jobs associated with post-construction monitoring of the larger turbines authorized by the coastal general permits at N.J.A.C. 7:7-7.30 and 7.31, or through the individual permitting process, as well as habitat evaluation and impact assessment required for wind turbines proposed in tidal waters. The exact number of jobs will depend on the number of facilities that are authorized under a coastal permit as well as the size of the turbines proposed.

Agriculture Industry Impact

The proposed amendments apply to the construction of wind turbines and installation of solar panels. The activities authorized under the proposed permits-by-rule and coastal general permits do not specifically apply to the agricultural industry, however, the permits-by-rule and coastal general permits would authorize the installation of wind turbines and solar panels at agricultural facilities that met the conditions of these permits. The permits-by-rule and coastal general permits are intended to simplify and streamline the coastal and Flood Hazard permitting process, thus facilitating the construction of

wind turbines and solar panels that meet the conditions of the applicable coastal permit. Therefore, no adverse effect on agricultural activities is anticipated.

Regulatory Flexibility Analysis

In accordance with the New Jersey Regulatory Flexibility Act, N.J.S.A. 52:14B-16 et seq., the Department has determined that the proposed amendments may affect "small businesses" as defined in the Act. The Department is proposing these amendments to simplify the permitting process for the installation of wind turbines and solar panels in certain regulated areas. The proposed permits-by-rule and coastal general permits will assist small businesses in navigating the regulatory process by providing greater flexibility to small businesses that plan to install wind turbines and solar panels in the coastal zone or areas regulated by the Flood Hazard Area Control Act rules, N.J.A.C. 7:13, provided the proposed construction meets the criteria of a permit-by-rule or coastal general permit. The Department anticipates that the size limitations of the proposed permit-by-rule for wind turbines will allow the construction of most 50 kilowatt and smaller wind turbines, the power rating typically used at small businesses.

The proposed permits-by-rule will dramatically reduce the costs associated with a coastal permit application since no plans, application forms, photographs, or application fee are required to be authorized to install a system under the permit-by-rule. In addition, the proposed permit-by-rule does not require new reporting or recordkeeping. If a small business instead proposes to build a wind turbine larger than that authorized by the permit-by-rule, monitoring and accompanying reporting requirements will be required. This is appropriate since wind turbines are a new use in the coastal zone as well as internationally and such information is necessary to evaluate their effects. The proposed coastal general permits will reduce the costs of a coastal permit application, due to decreased permit application fee and information requirements.

Smart Growth Impact

Executive Order No. 4 (2002) requires State agencies that adopt, amend or repeal State regulations to include in the rulemaking document a smart growth impact statement

that describes the impact of the proposed rule on the achievement of smart growth and implementation of the State Development and Redevelopment Plan. The Energy Resources policy of the State Plan calls for use of the Energy Master Plan to coordinate energy planning activities of State agencies, private utilities and utility authorities. The Energy Resources policy also promotes the development of renewable energy resources. The proposed amendments to the Coastal Zone Management rules, Coastal Permit Program rules and Flood Hazard rules are intended to facilitate the development of renewable energy resources, specifically wind and solar power. Thus the proposed amendments will further the Energy Resources policy of the State Plan and comport with the achievement of smart growth and implementation of the State Development and Redevelopment Plan.

Housing Affordability Impact Statement

In accordance with N.J.S.A. 52:14B-4, as amended effective July 17, 2008, by P.L. 2008, c. 46, the Department has evaluated the proposed amendments to determine their impact, if any, on the affordability of housing. The proposed amendments establish new permits-by-rule and coastal general permits for the construction of wind turbines and solar panels. They also describe the circumstances in which these facilities do not require a coastal permit.

The proposed amendments do not impose requirements on homeowners. The amendments do apply to those homeowners that intend to build a wind turbine or install solar panels at their home in the coastal zone and to those that wish to install one to three wind turbines in areas regulated under the Flood Hazard rules. The rules describe that these facilities are not regulated when constructed on existing homes, and that solar panels are not regulated when they are installed on existing impervious cover that is not located in the floodway in the coastal zone. Further, the amendments include a coastal permit-by-rule for the installation of solar panels in landscaped areas at single family homes. Accordingly, these amendments will benefit homeowners proposing such construction. However, the Department has determined that the proposed amendments will evoke no change in the overall average cost associated with housing in the State.

Smart Growth Development Impact Analysis

In accordance with N.J.S.A. 52:14B-4, as amended effective July 17, 2008, by P.L. 2008, c. 46, the Department has evaluated the proposed amendments to determine their impact, if any, on smart growth development. The proposed amendments establish new permits-by-rule and coastal general permits for the construction of wind turbines and solar panels. They also clarify the circumstances in which these facilities do not require a coastal permit. The proposed rules do not impose requirements on residential housing. Therefore, the rules will not evoke a change in housing production in Planning Areas 1 or 2, or within designated centers.

Full text of the proposed amendments follows (addition indicated in boldface **thus**; deletions indicated in brackets [thus]):

CHAPTER 7
COASTAL PERMIT PROGRAM RULES

SUBCHAPTER 1. GENERAL PROVISIONS

7:7-1.3 Definitions

The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise.

…

"Floodway" has the same meaning as the definition of that term in the Flood Hazard Area Control Act rules at N.J.A.C. 7:13-1.2.

…

"Impervious cover" means any structure, surface, or improvement that reduces and/or prevents absorption of stormwater into land. Porous paving, paver blocks,

gravel, crushed stone, crushed shell, elevated structures (including boardwalks), and other similar structures, surfaces, or improvements are considered impervious cover. Grass, lawns, or any other vegetation are not considered impervious cover.

…

"Rotor swept area" means the area of the circle delineated by the tips of the blades of the wind turbine for a horizontal axis wind turbine, and the area determined by multiplying the rotor radius times the rotor height times 3.14 for a vertical axis wind turbine.

…

SUBCHAPTER 2. ACTIVITIES FOR WHICH A PERMIT IS REQUIRED

7:7-2.1 CAFRA

(a) (No change.)

(b) The Department interprets its obligation and responsibility to regulate development as defined by CAFRA to include review of the potential impacts of any development, if at least part of that development is located within the area in which a CAFRA permit is required. Therefore, if any development requires a CAFRA permit, the Department will review all of the components of the development, not just those that triggered the regulatory thresholds of CAFRA. In addition, the Department will review all the components of a development that spans the zones in (a) above if the total development exceeds a regulatory threshold. The Department interprets the statutory intent as excluding developments with relatively minor impacts. In addition, the repair and maintenance of utilities within rights-of-way on beaches and dunes are not regulated development as defined at N.J.A.C. 7:7-1.3 provided that all disturbed areas are restored to their pre-disturbance condition. To that end, the following statutory terms are interpreted to mean the following, for the purposes of this section.

1. – 12. (No change.)

13. Development is not the following:

i. The installation of a wind turbine(s) provided the wind turbine(s) is:

(1) On or structurally attached to a legally existing building;

(2) Less than 200 feet in height, measured from the ground surface to the tip of the blade at its highest position;

(3) No greater than 2,000 square feet in cumulative rotor swept area; and

(4) Any portion of the tower of the wind turbine more than 100 feet above the ground surface is a freestanding monopole;

ii. The installation of a solar panel(s) provided the solar panel(s) is:

(1) On or structurally attached to a legally existing building;

(2) On or structurally attached to a utility pole within a maintained utility right-of-way;

(3) On legally existing impervious cover unless the solar panel would be located in a floodway; or

(4) On a sanitary landfill provided the solar panel is included in the Closure and Post-Closure Care and/or Construction Plan or modified plan as approved by the Department in accordance with N.J.A.C. 7:26.

N.J.A.C. 7:7-2.3 Waterfront development

(a) – (c) (No change.)

(d) A permit shall be required for the construction, reconstruction, alteration, expansion or enlargement of any structure, or for the excavation or filling of any area, any portion of which is in the waterfront area as defined in (a) above, with the exceptions listed below:

1. – 3. (No change.)

4. In the waterfront area defined in (a)3 above, the installation of a wind turbine(s) provided the wind turbine(s) is:

i. On or structurally attached to a legally existing building;

ii. Less than 200 feet in height, measured from the ground surface to the tip of the blade at its highest position;

iii. No greater than 2,000 square feet in cumulative rotor swept area; and

iv. Any portion of the tower of the wind turbine more than 100 feet above the ground surface is a freestanding monopole;

5. In the waterfront area defined in (a)3 above, the installation of solar panels provided the solar panels are:

i. On or structurally attached to a legally existing building;

ii. On or structurally attached to a utility pole within a maintained utility right-of-way;

iii. On legally existing impervious cover provided the solar panels are not located within a floodway; or

iv. On a sanitary landfill provided the solar panel is included in the Closure and Post-Closure Care and/or Construction Plan or modified plan as approved by the Department in accordance with N.J.A.C. 7:26.

Recodify existing 4. – 6. as 6. – 8. (No change in text)

SUBCHAPTER 4. PERMIT REVIEW PROCEDURE

7:7-4.2 Application contents

(a) through (f) (No change.)

(g) All applications for the construction of wind turbines that, in accordance with the Energy use rule, N.J.A.C. 7:7E-7.4(r), require pre and/or post-construction monitoring, shall include the proposed monitoring methodology.

SUBCHAPTER 7. GENERAL PERMITS AND PERMITS-BY-RULE

N.J.A.C. 7:7-7.2 Permits-By-Rule

(a) This section details the activities authorized by a Permit-By-Rule.

1. – 11. (No change.)

12. The construction of one to three wind turbines less than 200 feet in height, measured from the ground surface to the tip of the blade at its highest position, and having a cumulative rotor swept area no greater than 2,000 square feet provided:

i. No portion of the wind turbine(s), including blades, tower and site disturbance, shall be located in, on or over dunes, beaches, wetlands, coastal bluffs, or wild and scenic river corridors;

ii. No wind turbine tower(s) or site disturbance shall be located in floodways;

iii. The wind turbine(s), including blades, tower and site disturbance, is set back a minimum of 50 feet, as measured parallel to the ground:

(1) Landward of the mean high water line and the inland limit of any beach or dune. This setback does not apply to manmade lagoons; and

(2) From the boundary of any wetlands;

iv. No portion of the wind turbine, including blades, tower and site disturbance, shall be located within an area mapped as threatened or endangered species habitat on the Department's Landscape Maps of Habitat for Endangered, Threatened and Other Priority Wildlife (Landscape Maps) except as provided at (1) and (2)below. The Landscape Maps are available on the Department's interactive mapping website at http://www.nj.gov/dep/gis;

(1) The wind turbine(s) is located within 120 feet of an existing building on an actively maintained lawn or area of land that has been manipulated by contouring of the soil and/or by intentional planting of flowers, grasses, shrubs, trees or other ornamental vegetation, which is maintained in such a condition by regular and frequent (at least one time per year) cutting, mowing, pruning, planting, weeding or mulching; or

(2) The wind turbine(s) is located on legally existing impervious cover;

v. If the wind turbine(s) is more than 100 feet tall, measured from the ground surface to the tip of the blade at its highest position, the tower shall be a freestanding monopole(s);

vi. No lighting shall be placed on or directed at the wind turbine except that shielded ground level security lighting may be used; and

vii. Development under this permit-by-rule shall not result in construction of more than three wind turbines on a site, either solely or in conjunction with a previous wind turbine development.

13. The installation of solar panels on a maintained lawn or landscaped area at a single family home or duplex lot provided:

i. The solar panel development shall not be located in or on dunes, beaches, wetlands, floodways, or coastal bluffs;

ii. The solar panel development shall be setback a minimum of 50 feet from the inland limit of any wetlands, beach, or dune;

iii. The maintained lawn or landscaped area is not subject to a previous coastal permit requirement that it remain as vegetative cover; and

iv. The solar panel development shall not be located within an area mapped as threatened or endangered species habitat on the Department's Landscape Maps of Habitat for Endangered, Threatened and Other Priority Wildlife (Landscape Maps), except as provided at (1) and (2) below. The Landscape Maps are available on the Department's interactive mapping website at http://www.nj.gov/dep/gis;

(1) The solar panel(s) is located within 120 feet of an existing building on an actively maintained lawn or area of land that has been manipulated by contouring of the soil and/or by intentional planting of flowers, grasses, shrubs, trees or other ornamental vegetation, which is maintained in such a condition by regular and frequent (at least one time per year) cutting, mowing, pruning, planting, weeding or mulching; or

(2) The solar panel(s) is located on legally existing impervious cover.

N.J.A.C. 7:7-7.30 Coastal general permit for the construction of one to three wind turbines less than 200 feet in height and having a cumulative rotor swept area no greater than 4,000 square feet

(a) This coastal general permit authorizes the construction of one to three wind turbines less than 200 feet in height, measured from the ground surface to the tip of the blade at its highest position, and having a cumulative rotor swept area no greater than 4,000 square feet provided:

1. No portion of the wind turbine(s), including blades, tower and site disturbance, shall be located in, on or over dunes, beaches, wetlands, coastal bluffs, or wild and scenic river corridors;

2. No wind turbine tower(s) or site disturbance shall be located in floodways;

3. The wind turbine(s), including blades, tower and site disturbance, is set back a minimum of 50 feet, as measured parallel to the ground:

i. Landward of the mean high water line and the inland limit of any beach or dune. This setback does not apply to manmade lagoons; and

ii. From the boundary of any wetlands;

4. The wind turbine(s) shall comply with N.J.A.C. 7:7E-3.38, Endangered or threatened wildlife or plant species habitat and N.J.A.C. 7:7E-3.39, Critical wildlife habitat;

5. Development under this general permit shall not result in construction of more than three wind turbines on a site, either solely or in conjunction with a previous wind turbine development;

6. If the wind turbine(s) is more than 100 feet tall, measured from the ground surface to the tip of the blade at its highest position, the tower shall be a freestanding monopole(s);

7. No lighting shall be placed on or directed at the wind turbine except that shielded ground level security lighting may be used; and

8. In order to assess the impact of the operation of wind turbines authorized under this coastal general permit on avian species and bats, post-construction monitoring shall be required for the first 15 wind turbine developments constructed under this coastal general permit, where the rotor swept area either individually or cumulatively on a site, exceeds 2,000 square feet. The monitoring shall be conducted for one full year beginning immediately after the wind turbines begin operation and shall consist of bird and bat carcass searches as well as removal and efficiency trials. The monitoring methodology shall be approved by the Department prior to initiation and a complete report of findings submitted to the Department within three months of completion of the monitoring. The Department has prepared a

technical manual titled, "Technical Manual for Evaluating Wildlife Impacts of Wind Turbines Requiring Coastal Permits," which provides guidance on monitoring and reporting. The technical manual is available from the Department's Division of Land Use Regulation website www.state.nj.us/dep/landuse.

(b) In accordance with N.J.A.C. 7:7-7.1(e)1, the Department may add a special condition to an authorization under this general permit, that would curtail the operation of the wind turbines, as directed by the Department pursuant to (b)1 below, during peak spring (April through June) and fall (August through November) migration periods when migrating birds or bats would likely be flying at the height of the rotor swept area or be present at seasonally high densities throughout the entire air column. Such curtailment shall not exceed 360 hours in a calendar year per turbine that occurs within the normal range of operation of the turbine. Curtailment measures include establishing a minimum wind speed that must be achieved prior to starting operations and shutting down operations during certain weather conditions or migratory events. Weather conditions that may necessitate curtailment include low wind speeds, low altitude cloud cover, strong storms, or approaching weather fronts favorable to bird or bat migration (such as southerly winds in the spring or northwest winds in the fall). Migratory events that may necessitate curtailment include high concentrations of migrating birds and bats using the coastal area (for example, high concentrations of shorebirds making daily flights between coastal feeding areas, such as mudflats, and roosting areas during spring migration).

1. Limitations on operation shall be developed by the Department based on monitoring results and published and unpublished studies or data. The Department shall notify the permittee in writing of the operational limitations by March 15th of the first year curtailment is required during the spring migration and by July 15th of the first year curtailment is required during the fall migration. These operational limitations shall remain in effect unless the Department notifies the permittee in writing by the above dates in subsequent years that changes to operational

limitations are required. This information shall also be made available on the Department's website at www.state.nj.us/dep/landuse.

(c) In addition to the application and information required under N.J.A.C. 7:7E-7.3, the following information shall be submitted:

1. Five copies of a site plan showing the following:

i. The mean high water lines of the tidal waters within 50 feet of any portion of the wind turbine(s), including blades, tower and site disturbance;

ii. Existing features at the site including topography, structures, utilities, beach areas, dune areas, coastal bluffs, and floodways;

iii. The upper limits of wetlands, beaches, dunes and coastal bluffs within 150 feet of any portion of the wind turbine(s), including blades, tower and site disturbance;

iv. The proposed location of each proposed wind turbine, all limits of disturbance, grading, and existing and proposed clearing areas; and

vi. The proposed lighting for each proposed wind turbine;

2. Five copies of an elevation plan of each proposed wind turbine;

3. The total height and rotor swept area for each proposed wind turbine;

4. Five copies of the post-construction monitoring methodology, if applicable; and

5. Five copies of a Compliance Statement prepared in accordance with N.J.A.C. 7:7-6, demonstrating how the proposed wind turbine(s) comply with (a) above, including supplemental documents as appropriate, such as maps or surveys.

N.J.A.C. 7:7-7.31 Coastal general permit for the construction of wind turbines less than 250 feet in height and having a cumulative rotor swept area no greater than 20,000 square feet

(a) This coastal general permit authorizes the construction of wind turbines less than 250 feet in height, measured from the ground surface to the tip of the blade at

its highest position, and having a cumulative rotor swept area no greater than 20,000 square feet provided:

1. No portion of the wind turbine(s), including blades, tower and site disturbance, shall be located in, on or over dunes, beaches, wetlands, coastal bluffs, or wild and scenic river corridors;

2. No wind turbine tower(s) or site disturbance shall be located in floodways;

3 The wind turbine(s), including blades, tower and site disturbance, is set back a minimum of 50 feet, as measured parallel to the ground:

i. Landward of the mean high water line and the inland limit of any beach or dune. This setback does not apply to manmade lagoons; and

ii. From the boundary of any wetlands;

4. No portion of the wind turbine(s), including blades, tower and site disturbance shall be located within:

i. An area mapped as threatened or endangered species habitat on the Department's Landscape Maps of Habitat for Endangered, Threatened and Other Priority Wildlife (Landscape Maps). The Landscape Maps are available on the Department's interactive mapping website at http://www.nj.gov/dep/gis;

ii. An area identified on the Department's Large Scale Wind Turbine Siting Map, dated August 8, 2009, incorporated by reference into N.J.A.C. 7:7E. The Department's Large Scale Wind Turbine Siting Map is available on the Department's interactive mapping website at http://www.nj.gov/dep/gis; or

iii. One-quarter mile of an area identified on the Department's Large Scale Wind Turbine Siting Map;

5. The wind turbine(s) shall comply with N.J.A.C. 7:7E-3.39, Critical wildlife habitat rule;

6. Development under this general permit shall not result in construction of turbines with a cumulative rotor swept area, as defined at N.J.A.C. 7:7-1.3, greater than 20,000 square feet on a site, either solely or in conjunction with a previous wind turbine development;

7. If the wind turbine(s) is more than 100 feet tall, measured from the ground surface to the tip of the blade at its highest position, the tower shall be a freestanding monopole(s);

8. No lighting shall be placed on or directed at the wind turbine except that lighting required by the Federal Aviation Administration and shielded ground level security lighting may be used; and

9. In order to assess the impact of the operation of wind turbines authorized under this coastal general permit on avian species and bats, post-construction monitoring shall be required. The monitoring shall be conducted for one full year beginning immediately after the wind turbines begin operation and shall include bird and bat carcass searches as well as removal and efficiency trials. The monitoring methodology shall be approved by the Department prior to initiation and a complete report of findings submitted to the Department within three months of completion of the monitoring. The Department has prepared a technical manual titled, "Technical Manual for Evaluating Wildlife Impacts of Wind Turbines Requiring Coastal Permits," which provides guidance on monitoring and reporting. The technical manual is available from the Department's Division of Land Use Regulation website www.state.nj.us/dep/landuse .

(b) In accordance with N.J.A.C. 7:7-7.1(e)1, the Department may add a special condition to an authorization under this general permit, that would curtail the operation of the wind turbines as directed by the Department pursuant to (b)1 below, during peak spring (April through June) and fall (August through November) migration periods when migrating birds or bats would likely be flying at the height of the rotor swept area or be present at seasonally high densities throughout the entire air column. Such curtailment shall not exceed 360 hours in a calendar year per turbine that occurs within the normal range of operation of the turbine. Curtailment measures include establishing a minimum wind speed that must be achieved prior to starting operations and shutting down operations during certain weather conditions or migratory events. Weather conditions that may

necessitate curtailment include low wind speeds, low altitude cloud cover, strong storms, or approaching weather fronts favorable to bird or bat migration (such as southerly winds in the spring or northwest winds in the fall). Migratory events that may necessitate curtailment include high concentrations of migrating birds and bats using the coastal area (for example, high concentrations of shorebirds making daily flights between coastal feeding areas, such as mudflats, and roosting areas during spring migration).

1. Limitations on operation shall be developed by the Department based on monitoring results and published and unpublished studies or data. The Department shall notify the permittee in writing of the operational limitations by March 15th of the first year curtailment is required during the spring migration and by July 15th of the first year curtailment is required during the fall migration. These operational limitations shall remain in effect unless the Department notifies the permittee in writing by the above dates in subsequent years that changes to operational limitations are required. This information shall also be made available on the Department's website at www.state.nj.us/dep/landuse.

(c) In addition to the application and information required under N.J.A.C. 7:7E-7.3, the following information shall be submitted:

1. Five copies of a site(s) plan showing the following:

i. The mean high water lines of the tidal waters within 50 feet of any portion of the wind turbine(s), including blades, tower and site disturbance;

ii. Existing features at the site including topography, structures, utilities, beach areas, dune areas, coastal bluffs, floodways, and limits of the areas identified on the Department's Large Scale Wind Turbine Siting Map and areas within one-quarter mile of mapped areas;

iii. The landward limits of wetlands, beaches, dunes and coastal bluffs within 50 feet of any portion of the wind turbine(s), including blades, tower and site disturbance;

iv. The proposed location of each proposed wind turbine, including all limits of disturbance, grading, and existing and proposed clearing areas; and

vi. The proposed lighting for each proposed wind turbine;

2. Five copies of an elevation plan of each proposed wind turbine;

3. The total height and rotor swept area for each proposed wind turbine;

4. Five copies of the post-construction monitoring methodology; and

5. Five copies of a Compliance Statement prepared in accordance with N.J.A.C. 7:7-6, demonstrating how the proposed wind turbine(s) comply with (a) above, including supplemental documents as appropriate, such as maps or surveys.

CHAPTER 7:7E
COASTAL ZONE MANAGEMENT RULES

SUBCHAPTER 3. SPECIAL AREAS

7:7E-3.38 Endangered or threatened wildlife or plant species habitats

(a) Endangered or threatened wildlife or plant species habitats are **terrestrial and aquatic (marine, estuarine or freshwater)** areas known to be inhabited on a seasonal or permanent basis by or to be critical at any stage in the life cycle of any wildlife or plant identified as "endangered" or "threatened" species on official Federal or State lists of endangered or threatened species, or under active consideration for State or Federal listing. The definition of endangered or threatened wildlife or plant species habitats includes a sufficient buffer area to ensure continued survival of the population of the species **as well as areas that serve an essential role as corridors for movement of endangered or threatened wildlife**. Absence of such a buffer area does not preclude an area from being endangered or threatened wildlife or plant species habitat.

1. – 3. (No change.)

(b) – (i) (No change.)

7:7E-3.49 Atlantic City

(a) – (b) (No change.)

(c) The following standards apply to all development proposed on or over the existing ocean piers listed at (c)1 below.

1. – 4. (No change.)

5. The height of **[**the**]** structures on the pier shall not exceed 100 feet above the deck surface of the Boardwalk, except for decorative architectural elements**, [**and**]** amusement rides, **and wind turbines,** which shall not exceed 200 feet. **The height of the wind turbine shall be measured from the decking of the pier to the tip of the blade at its highest position.** There shall be no occupancy above the 100 foot elevation.

6. – 11. (No change.)

(d) – (l) (No change.)

SUBCHAPTER 3C. STANDARDS FOR CONDUCTING AND REPORTING THE RESULTS OF AN ENDANGERED OR THREATENED WILDLIFE OR PLANT SPECIES HABITAT IMPACT ASSESSMENT AND/OR ENDANGERED OR TREATENED WILDLIFE SPIECES HABITAT EVALUATION

7:7E-3C.2 Standards for conducting Endangered or Threatened Wildlife or Plant Species Habitat Impact Assessments

(a) – (b) (No change.)

(c) Impact assessments shall be conducted for each endangered or threatened wildlife or plant species described in (a) and/or (b) above. The impact assessment shall consider the likely affects of the proposed development on the local populations of the particular species on or abutting the site. The impacts shall be assessed using accepted ecological principles and scientific literature on each species and both direct and indirect impacts of the proposed development shall be considered. This assessment shall be based on habitat requirements and life history of each species, and the manner in which the proposed development may alter habitat, including, but not limited to, vegetation, soils, **substrate, bathymetry, salinity,** hydrology, **wildlife movement corridors,** human disturbance, and effects on competitor, parasite, or predator species.

SUBCHAPTER 7. USE RULES

7:7E-7.4 Energy facility use rule

(a) (No change.)

(b) Standards relevant to siting of new energy facilities, including all associated development activities, are as follows:

1. -2. (No change.)

3. Notwithstanding (b)2 above, wind and solar energy facilities, including blades, towers and site disturbance shall be sited at least 50 feet inland of the mean high water line of tidal waters in the areas identified at (b)2i and ii above, except for the following:

i. A wind energy facility that meets N.J.A.C. 7:7E-3.49(c)5; or

ii. A wind energy facility that meets (1) and (2) below. The Department shall limit approvals under this subparagraph to ensure that the cumulative number of wind turbines approved does not exceed five, each with a power rating as determined by the manufacturer of 5 megawatts or less. The wind energy facility shall be:

(1) Located in the Atlantic Ocean within State waters between latitude 39º 55' 56" N (offshore of Seaside Park) and latitude 39º 01' 58" N (offshore of Stone Harbor); and

(2) No closer than 2.5 nautical miles to the mean high water line.

Recodify existing 3. – 5. as 4. – 6. (No change.)

(c) – (q) (No change.)

(r) Standards relevant to electric generating stations are as follows:

1. New or expanded electric generating facilities (for base load, cycling, or peaking purposes) and related facilities are conditionally acceptable provided:

i. – iv. (No change.)

v. The cogeneration of electricity and process steam for industrial, community and commercial use is encouraged;

[v.**]** **vi.** The construction of electric generating facilities using renewable forms of energy such as solar radiation, wind, and water, including experimental and demonstration projects, is **[**encouraged in the coastal zone**]** **conditionally acceptable** provided that **[**the**]** **such** facilities do not significantly detract from scenic or recreational values**, and for wind energy facilities, comply with vii and viii below;[**.The cogeneration of electricity and process steam for industrial, community and commercial use is also encouraged.**]**

vii. In order to minimize adverse effects on birds and bats, wind energy facilities located on land shall:

(1) For a wind turbine(s) 200 feet in height or taller or having a cumulative rotor swept area greater than 4,000 square feet on a site, be sited such that no portion of the wind turbine(s), including blades, towers and site disturbance shall be located in the areas identified on the Department's Large Scale Wind Turbine Siting Map, dated August 8, 2009, incorporated by reference into this chapter. This map is available on the Department's interactive mapping website at http://www.nj.gov/dep/gis. The Department may revise the Large Scale Wind Turbine Siting Map in accordance with (r)3 below. The rotor swept area is the area of a circle delineated by the tips of the blades of the wind turbine for a horizontal axis wind turbine, and the area determined by multiplying the rotor radius times the rotor height times 3.14 for a vertical axis wind turbine;

(2) Have no light(s) placed on or directed at the wind turbine(s), except for lighting required by the Federal Aviation Administration. Shielded ground level security lighting may be used;

(3) Use a freestanding monopole tower if the wind turbine is more than 100 feet tall, measured from the ground surface to the tip of the blade at its highest position. Guy wires or lattice towers are prohibited for a wind turbine more than 100 feet in height;

(4) Perform pre and/or post construction monitoring in order to establish the flight patterns and distribution of avian species and bats and impacts of the operation of these facilities on these species. Information shall be gathered on species composition, abundance, distribution, behavior, and flight pattern heights, as well as collisions associated with wind turbine construction and/or operation. Pre and/or post construction monitoring is dependent upon the scope of the facility including the number, height and rotor swept area of the turbines. Pre and post-construction monitoring may include visual, radar and acoustic surveys. Post construction monitoring shall also include carcass searches as well as removal and efficiency trials. The Department has prepared a technical manual titled, "Technical Manual for Evaluating Wildlife Impacts of Wind Turbines Requiring Coastal Permits," which provides guidance on monitoring and reporting. The technical manual is available from the Department's Division of Land Use Regulation website www.state.nj.us/dep/landuse .

(5) Curtail operations of wind turbines, as directed by the Department pursuant to (A) below, during peak spring (April through June) and fall (August through November) migration periods when migrating birds or bats would likely be flying at the height of the rotor swept area or be present at seasonally high densities throughout the entire air column. Such curtailment shall not exceed 360 hours in a calendar year per turbine that occurs within the normal range of operation of the turbine. Curtailment measures include establishing a minimum wind speed that must be achieved prior to starting operations and shutting down operations during certain weather conditions or migratory events. Weather conditions that may necessitate curtailment include low wind speeds, low altitude cloud cover, strong storms, or approaching weather fronts favorable to bird or bat migration (such as southerly winds in the spring or northwest winds in the fall). Migratory events that may necessitate curtailment include high concentrations of migrating birds and bats using the coastal area (for example, high concentrations of shorebirds making daily flights between coastal feeding areas, such as mudflats, and roosting areas during spring migration).

(A) Limitations on operation shall be developed by the Department based on monitoring results and published and unpublished studies or data. The Department shall notify the permittee in writing of the operational limitations by March 15th of the first year curtailment is required during the spring migration and by July 15th of the first year curtailment is required during the fall migration. These operational limitations shall remain in effect unless the Department notifies the permittee in writing by the above dates in subsequent years that changes to operational limitations are required. This information shall also be made available on the Department's website at www.state.nj.us/dep/landuse; and

viii. In order to minimize adverse effects on birds, bats, and marine organisms, wind energy facilities located in tidal waters shall:

(1) Have no light(s) placed on the wind turbine(s), except for lighting required by the Federal Aviation Administration and the United States Coast Guard. Shielded security lighting may be used;

(2) Use a monopole tower or other tower design that does not provide perching or roosting opportunities or other obstructions to birds or bats;

(3) Perform a habitat evaluation, including species surveys, an impact assessment and post-construction monitoring in order to establish the movement corridors and distribution of avian species, bats, and marine organisms and impacts of the construction and/or operation of these facilities on these species. Information shall be gathered on species composition, abundance, distribution, behavior and, for avian species and bats, flight pattern heights, as well as collisions and behavioral changes associated with wind turbine construction and/or operation. The habitat evaluation, impact assessment and post construction monitoring are dependent upon the scope of the facility including the number, height and rotor swept area of the turbines. Habitat evaluations may include visual, radar and acoustic surveys. Post construction monitoring may include visual surveys and other collision detection systems. Habitat evaluations, impact assessments and post-construction monitoring and reporting requirements will be coordinated with the Department, US Fish and Wildlife Service, and National Marine Fisheries

Service. The Department has prepared a technical manual titled, "Technical Manual for Evaluating Wildlife Impacts of Wind Turbines Requiring Coastal Permits," which provides guidance on habitat evaluations and assessments, monitoring and reporting. The technical manual is available from the Department's Division of Land Use Regulation website www.state.nj.us/dep/landuse; and

(4) Curtail operations of wind turbines, as directed by the Department pursuant to (A) below, during peak spring (April through June) and fall (August through November) migration periods when migrating birds or bats would likely be flying at the height of the rotor swept area or be present at seasonally high densities throughout the entire air column. Such curtailment shall not exceed 360 hours in a calendar year per turbine that occurs within the normal range of operation of the turbine. Curtailment measures include establishing a minimum wind speed that must be achieved prior to starting operations and shutting down operations during certain weather conditions or migratory events. Weather conditions that may necessitate curtailment include low wind speeds, low altitude cloud cover, strong storms, or approaching weather fronts favorable to bird or bat migration (such as southerly winds in the spring or northwest winds in the fall). Migratory events that may necessitate curtailment include high concentrations of migrating birds and bats using the coastal area (for example, high concentrations of shorebirds making daily flights between coastal feeding areas, such as mudflats, and roosting areas during spring migration).

(A) Limitations on operation shall be developed by the Department based on monitoring results and published and unpublished studies or data. The Department shall notify the permittee in writing of the operational limitations by March 15th of the first year curtailment is required during the spring migration and by July 15th of the first year curtailment is required during the fall migration. These operational limitations shall remain in effect unless the Department notifies the permittee in writing by the above dates in subsequent years that changes to operational limitations are required. This information shall also be made available on the Department's website at www.state.nj.us/dep/landuse.

2. (No change.)

3. The Department may revise the Large Scale Wind Turbine Siting Map based on new information on species occurrence, new information on appropriate buffers, or new information on impacts developed from ongoing monitoring or from published and unpublished studies or data, in order to minimize adverse effects on birds and bats, as follows:

i. The Department shall publish notice of its intent to revise the Large Scale Wind Turbine Siting Map in the New Jersey Register, as well as in a newspaper of general circulation in each affected county and post the proposed revision of the map on the Department's interactive mapping website at www.nj.gov/dep/gis. The notice shall include:

(1) A description of the proposed revision;

(2) An explanation of why it is being proposed; and

(3) An invitation for interested parties to submit written comments for a period of 30 days.

ii. Upon consideration of the available information and public comments, if the Department concludes that revising the Large Scale Wind Turbine Siting Map is appropriate based on the potential risk to birds and bats associated with the operation of large scale wind turbines, the Department shall:

(1) Revise the map as the Department deems necessary;

(2) Publish a description of the revision in the New Jersey Register, including a response to any public comments;

(3) Publish a public notice describing the revision in a newspaper of general circulation in each affected county; and

(4) Post the revised map on the Department's interactive mapping website at www.nj.gov/dep/gis.

Recodify existing 3. as 4. (No change in text)

(s) (No change.)

7:7E-7.14 High Rise Structures

(a) – (b) (No change.)

(c) The high-rise structures rule shall not apply to the following types of development:

1. Development in Atlantic City on existing ocean piers which meets the standards at N.J.A.C. 7:7E-3.49(c) or pedestrian bridges which meet the standards at N.J.A.C. 7:7E-3.49(i)1; **[**or**]**

2. Utility structures that have a demonstrated need**[**.**]**; **or**

3. Wind turbines.

(d) (No change.)

SUBCHAPTER 8. RESOURCE RULES

7:7E-8.12 Scenic resources and design

(a) – (c) (No change.)

(d) In all areas, except the Northern Waterfront region, the Delaware River Region and Atlantic City, new coastal development adjacent to a bay or ocean or bayfront or oceanfront, beach, dune or boardwalk and higher than 15 feet in height measured from the existing grade of the site or boardwalk shall comply with the following, unless it meets the requirements at (e) below:

1. Provide an open view corridor perpendicular to the water's edge in the amount of 30 percent of the frontage along the waterfront where an open view currently exists; and

2. Be separated from either the beach, dune, boardwalk, or waterfront, whichever is further inland, by a distance of equal to two times the height of the structure**, except for the following:[**. However, exceptions may be made for**]**

i. [i]**I**nfill sites within existing commercial areas along a public boardwalk where the proposed use is commercial and where the set-back requirement is visually incompatible with the existing character of the area**[**.]**; and**

ii. Wind turbines.

(e) – (f) (No change.)

N.J.A.C. 7:13 Flood Hazard Area Control Act Rules

SUBCHAPTER 7. PERMITS-BY-RULE

7:13-7.1 General provisions for permits-by-rules

(a) - (e) No change

Table A

SUMMARY OF PERMITS-BY-RULE

This Table is for informational purposes only. See N.J.A.C. 7:13-7.2(a) through (f) for specific applicable limits and requirements for each permit-by-rule

(a) (No change.)

(b) General construction and maintenance activities

1. Conducting normal property maintenance in a riparian zone
2. Removing a lawfully existing structure outside a floodway
3. Placing no more than 5 cubic yards of fill material outside a floodway
4. Repairing a lawfully existing structure
5. Constructing a fence
6. Construction in a tidal flood fringe that does not need a coastal permit
7. Constructing an addition above a building outside a floodway
8. Constructing a non-habitable building of no more than 150 square feet outside a floodway

9. Constructing an open structure with a roof outside a floodway (e.g., car port, patio, pole barn)

10. Constructing an aboveground recreational structure (e.g., bleacher, picnic table, backstop)

11. Constructing an aboveground swimming pool outside a floodway

12. Constructing an in-ground swimming pool

13. Constructing an open deck attached to a building

14. Constructing an open dock of no more than 1,000 square feet on an impounded water

15. Placing an aboveground fuel tank of no more than 2,000 gallons outside a floodway

16. Placing an underground fuel tank

17. Filling an abandoned raceway

18. Maintaining a manmade canal that passes through a regulated area

19. Constructing a wind turbine development consisting of one to three wind turbines

(c) – (f) (No change.)

7:13-7.2 Permits-by-rule

(a) (No change.)

(b) The permits –by-rule at (b)1 through **[**18**]** **19** below apply to the specified construction and maintenance activities listed therein.

1 – 16. (No change.)

17. The filling of an abandoned raceway adjacent to a regulated water, provided:

i. – iv. (No change.)

v. All vegetated areas temporarily disturbed within the riparian zone are replanted with indigenous, non-invasive species upon completion of the regulated activity; **[**and**]**

18. The repair, maintenance or dredging of the channel and/or embankments of a manmade canal, which passes through a regulated area, provided:

i. A public entity having jurisdiction over the canal determines that the proposed regulated activity is necessary for the proper operation of the canal;

ii. No fill or dredged spoils are placed in the flood hazard area;

iii. No trees are cleared, cut or removed in a riparian zone; and

iv. All vegetated areas temporarily disturbed within the riparian zone are replanted with indigenous, non-invasive species upon completion of the regulated activity**; and**

19. The placement of one to three wind turbines provided:

i. Each wind turbine is less than 200 feet tall, measured from the ground surface to the tip of the blade at its highest position;

ii. The rotor swept area of the wind turbine(s) shall not exceed a cumulative area of 2,000 square feet. Rotor swept area means the area of the circle delineated by the tips of the blades of the wind turbine for a horizontal axis wind turbine, and the area determined by multiplying the rotor radius times the rotor height times 3.14 for a vertical axis wind turbine;

iii. No wind turbine tower(s) or site disturbance shall be located in floodways;

iv. No portion of any wind turbine(s), including blades, tower and site disturbance, is located within an area mapped as threatened or endangered species habitat on the Department's Landscape Maps of Habitat for Endangered, Threatened and Other Priority Wildlife (Landscape Maps) except as provided at (1) and (2) below. Landscape Maps are available on the Department's interactive mapping website at http://www.nj.gov/dep/gis;

(1) The wind turbine is located within 120 feet of an existing building on an actively maintained lawn or area of land that has been manipulated by contouring of the soil and/or by intentional planting of flowers, grasses, shrubs, trees or other ornamental vegetation, which is maintained in such a condition by regular and frequent (at least one time per year) cutting, mowing, pruning, planting, weeding or mulching; or

(2) The wind turbine is located on lawfully existing building or on lawfully existing impervious cover;

v. If a wind turbine is more than 100 feet tall, measured from the ground surface to the tip of the blade at its highest position, the tower shall be a freestanding monopole(s);

vi. No lighting is placed on or directed at any wind turbine, except that shielded, ground level security lighting may be used;

vii. Development under this permit-by-rule shall not result in construction of more than three wind turbines on a site, either solely or in conjunction with a previous wind turbine development.

viii. No disturbance related to the regulated activity is located within 25 feet of any top of bank or edge of water;

ix. The construction activity is not a major development, as defined at N.J.A.C. 7:8-1.2, and is therefore not subject to the requirements of the Stormwater Management rules at N.J.A.C. 7:8;

x. No vegetation is cleared, cut or removed in a riparian zone, except where previous development or disturbance has occurred (such as an area maintained as a lawn or garden or an abandoned parking area that has partially revegetated);

xi. All vegetated areas temporarily disturbed within the riparian zone are replanted with indigenous, non-invasive species upon completion of the regulated activity; and

xii. All wires or cables connected to the wind turbine, except for guy wires on turbines 100 feet tall or less, are located underground.

(b) – (f) (No change.)